Task 1 Codes

Task 1 coded transcripts begin here

Subject 1

[note that subjects 1-3 did only one task apiece, and the retrospective component had not yet been introduced]

Task 1

1)go ah-go ahead?	Begin-Task
2)ok I see two glasses there,	See(glasses)
3)and now I'm gonna, make a search of the room.	Plan(search(currentRoom)
4)Looking alll the way around,	Search(currentRoom)
5a)I see that same two.	See(glasses)
5b)	infer(same glasses)
6)So that one is through.	Infer(no more in room)
7)And I'm going through this door next.	Plan(search(next room)
8)And I'm gonna go into the room.	Move(next room)
9)Look that way, pan around,	search(currentRoom)
10)I see none in there.	See(no glasses)
11)I walk through into this room.	Move(next room)
12)I sssseeeee, uh, one there.	See(glass)
13)Turn around and get a better look at the table,	Move(in room)
14a)there's, what appears to be three more.	See(3 glasses)
14b)	infer(different glasses)
15)Soo that gives me, four plus the two in... Is six.	Add(glasses(room1) glasses(room3))
16)I go back into this room.	Move(previous room)
17)I look here.	Search(currentRoom)
18)Nothing, look there.	See (no glasses)
19)Go into this room.	Move(next room)
20)This looks like the room I started off in.	infer(identity(currentRoom))
21)So I'm gonna go back out, this door.	Move(next room)
22)Annnd before I had turned, right, so this time I'll turn left There's no opening there.	Plan(next move) Move failed
23)Hmmmph. Ahhhhh I believe I'm done. Six.	Answer

[transciber/experimentor note: task one had 6 glasses for this subject only. All other subjects saw the final version of the task, but the chair with the glass on was not present this early]

[there was no retrospective this early]

Subject 13

Task 1

Participant's Utterances	***Code***
I'm in a room right now.	Begin Task
and near a table. There's a light fixture in front of me. To my left there's a table,	See(visibleObjects)
I can see the side of a table. Oh - with two glasses and a bottle.	See(glasses:2)
I'm turning towards the right to find an exit out of this room.	Plan(find(next room); Move(find(next room)
I find - two exits. One exactly to the right - to my right and one behind me.	Find(next rooms:2)
So as of now there are two glasses.	Report (Intermediate answer)
Now I'm going to enter a room.	Move(next room)
First looking for the left hand side corner of the room.	Look(partof(room))
uh Trying to navigate through the room and	Move(currentRoom)
find out if there are any object - which I am not able to see.	Search(glasses) fail(search)
oh I'm turning around,	Move(currentRoom)
having a look at all the - rooms. I just see a room right in front of me.	Look(adjacentRooms)
Aaaand I don't think thats the room I came from,	Infer(unvisitedRoom, adjacentRoom)
so I try to go inside. Going straight inside the room.	Move(adjacentRoom)
I see a table, with a glass and a bottle. Straight ahead in front of me.	See(objects)
So now thats three glasses.	Infer(current count)
To my left I again find a door.	Find(adjacentRoom)
I go to - into that door.	Move(adjacentRoom)
and I'm looking around.	Search(currentRoom)
Ok, I again find a chair, with a glass on it.	See(objects)
So thats four now.	Infer(objectIdentity) Report(intermediateAnswer)
I'm trying to find an exit	Searchfor(adjacentRoom)
and I find one to my left.	Find(adjacentRoom)
And I go inside.	Move(adjacentRoom)
And I see a table, with ... a bottle aaaand four glasses.	See(glasses:4, currentRoom)
So that counting up .. eight.	Infer(objectIdentity) Report(intermediateAnswer)

Participant's Utterances	***Code***
If I'm not wrong, thats 2, one, three, four, yup. Eight glasses till now.	Infer(objectIdentity) Report(intermediateAnswer)
Now I'm trying to find 'round my way into the room. Trying to find an exit -	Searchfor(adjacentRoom)
and I find one to the left.	Find(adjacentRoom)
I'm entering the room	Move(adjacentRoom)
- trying to find our whether there are any glasses in the room.	Searchfor(glass, currentRoom)
I don't see any glasses in this room -	Fail(find(glasses, currentRoom))
but I do find an exit ...	Find(adjacentRoom)
so. I'm trying to go into the exit. I find a room again,	Move(adjacentRoom)
but I'm not sure whether I've been into this room or not.	Uncertian(Infer(currentRoom, prevVisited)
But there are two glasses again in this room. From one point if I see thi- see seems as if there's only one glass. When I go closer I see that there are two.	See(glasses:2)
So now that makes the count to ten.	Infer(identity, glasses) Report(intermediate answer)
Again I go inside a room.	Move(adjacentRoom)
I guess I've been to this room earlier	Infer(identity, currentRoom)
so there are still eight.	Infer(identity, glasses) Report(intermediate answer)
Try to find my way out of this room.	Move(adjacentRoom)
I guess I have been he- been to this again.	Infer(identity, currentRoom)
So I guess I'm revolving in circles.	Infer(map)
Sooooo that's-. Ok I guess I started from here.	Infer(identity, currentRoom)
So now its. Two-	Discard(current, IntermediateResults) Report(intermediate results)
.....<silent navigation>	
ok I'm trying to go into another room.	Move(adjacentRoom)
And again I'm coming back to the same room.	Infer(identity, currentRoom)
From this I guess there are. three rooms,	Infer(map)
with around three plus four, seven glasses.	Infer(identity, glasses) Report(intermediate answer)
I guess thats enough. I can try going into a room but I still feel thats the same room again and again.	Infer(map)
So I guess pretty much there are one	Infer(identiy, currentRoom)
going into another room, , two,	Move(adjacentRoom) Infer(identity, currentRoom)

Participant's Utterances	***Code***
going into a third room, three,	Move(adjacentRoom) Infer(identity, currentRoom)
<silent navigation>	
there are sssssss one two,	Move(adjacentRoom) See(glasses:2) Infer(identity, glasses)
going into the third room.	Move(adjacentRoom)
Still trying to find my way. If I can find another room in this entire area. I feel this is a room without any glasses.	Plan/expectation
Ok I'm trotting around and finding out if I'm right or wrong.	Move(multiple rooms) Infer(identity, currentRoom) (repeated) Infer(identity, glasses) (repeated)
Ok - so thats four rooms	Infer(identity, rooms)
with ... <quietly> four plus two six</quiet>	Infer(identity, glasses) Report(intermediate answer)
I'm going back to the same room again. <silent naviation>	Moveto(room) Infer(Identity, room)
thats one glass	See(glasses:1) Infer(identity, glass)
so thats, four plus two, six plus one, seven glasses in four rooms which I have been able to clearly identify.	Infer(identity, glasses) Infer(idenity, rooms) Report(answer)

<retrospective>

I just saw to it that I went absolutely near the table where the glasses were kept or the chair where the glasses we kept. and probobly have a look at it from all the directions just to see to it that there are no glasses hidden behind one of those glasses and see to it that I covered all the directions in sight. and basically saw to it that I didn't miss any of those glasses - just having a look from one direction, because that won't give me the exact picture, I needed to look at it from all the directions. so thats what I tried to do.

Subject 17

Task 1

Participant's Utterances	***Code***
Allright, so Starting in the center of some room.	Begin-task
There's two glasses in really my field of vision.	See(glasses:2)
Turn around and see what else is in the room.	Search(currentRoom)
Nothing -	Fail(find(glasses))
well two entrances, Two ways to go.	Report(ChoicePoint)
Just choose one at random.	Decision rationale/explanation
<silent navigation>	<move adjacentRoom>
Nothing I see when I enter the room.	Fail(find(glasses))
<silent navigation>	
oh there is a glass there,	See(glasses:1)
so that's three so far.	Report(intermediateResult)
I've got the way I came and the way, aahhh that I, some other entrance in the room	Report(ChoicePoint)
so I'll just take this one.	Decision rationale/explanation
And there are four glasses as I enter the room	See(glasses:4)
so thats one two three four.	Report(intermediateResult)
<silent navigation> Turn around, see what else is in the room. See if I've missed anything.	Search(currentRoom)
No.	Fail(find(glasses))
Got sort of a - box happenin' shape to the rooms,	Infer(map)
so I'll just continue to go to my - left.	Plan
Enter the room.	Move(adjacentRoom)
....	Search(currentRoom)
nothing...	Fail(find(glasses))
complete the box.	Infer(map)
.<silent navigation>	Move(adjacentRoom)
This is the room I started in.	Infer(identity(currentRoom))
And I'm done. So thats.... ah seven.	Report-results

<retrospective>

Stop as short as I could inside a door when I got in. See what's there. Move to the other side of the room as far away as I could, turn around and see if I'd missed anything. I mean thats how I would handle each room. And everything else was sorta directional based, see which which kinda ex-exits there are and to see which options I have for when I leave.

Subject 21

Task 1

Participant's Utterance	***Coded***
Just the glasses or the bottle too? <experimentor points out the section from the task description indicating glasses>	Clarify-instructions
ok.	Begin task
<silent navagation> <experimentor prompts>	??
Ok yeah, this, this room has a table in the center with two glasses and one bottle,	See(distractor objects) See(glasses:2)
so thats a total of two right now	Report(IntermediateResults)
ummmm <silent navagation>	Move(adjacentRoom)
ok this room, the next room has a chair in a corner with one glass on it.	See(distractor) See(glasses:1)
Thats three.	Report(intermediateResults)
There's another room	Move(adjacentRoom) Infer(Identity(currentRoom)
oh- with again a table in the center.	Report(distractor)
I'm going around the table	Move(inRoom)
because I think there are two glasses,	Plan SearchFor(glasses)
I'm right!	See(glasses:?) Success(plan)
So there's four glasses on this table.	See(glasses:4) Report(IntermediateResults)
<silent navigation>	Move(inRoom)
and a bottle!	See(distractor)
<silent navigation>	Move(adjacentRoom)

Participant's Utterance	*Coded*
and- The next room is, empty!	Infer(Identity(currentRoom)) Fail(see(glasses))
<silent navigation>	SearchFor(glasses)
yes its empty.	??
ok. I think I'm, yeah. <silent navigation> <experimentor prompts subject>	?? Move(adjacentRoom)
uh-huh I'm, I think I'm in the same room again. The first one with two glasses,	Infer(Identity(currentRoom)
<subject is rapidly navigating while talking now> the second one with a chair in the corner and one glass on it.	Move(adjacentRoom) Infer(identity(currentRoom) Search(currentRoom) see(distractor)
Wait, yes its one glass.	See(glasses:1)
And the third one with, four glasses, one behi- one hidden behind the other.	Move(adjacentRoom) Infer(Identity(currentRoom)) Search(currentRoom) See(glasses:4)
So thats seven in all.	Report(Intermediate(Result))
And the forth room is empty.	Move(adjacentRoom) Infer(Identity(currentRoom)) Search(currentRoom) See(glasses:0)
Thats done.	Report(results) (last intermediate results

.

<retrospective>

um simply go 'round the tables. uh, to make sure there's no glass behind the other one, because like in the third room. uh it seems like there was only one glass but then from one angle, there was - it looked slightly bigger than the others so I went 'round it and, there were two!

<at the very end you said you were back in the first room [how did you decide that]>

um I knew how the room looked, so I knew I was back there. Actually, when I entered the first room, I didn't notice their were two doors. I though there was only one. So when I went back in through the other door, I wasn't sure if it was the same room, because I didn't go through the same door. I didn't go back. uh But - but I recognized the room - and the glasses.

Subject 22

Task 1

Participant's Utterances	***Coded***
I'm just. I think I was near a table,	Begin-task
there were a bottle and two glasses.	See(distractor) See(glasses:2)
I can't.	
There are two glasses	See(glasses:2)
and I am just randomly choosing one of the other rooms adjacent to this room	Plan(Move(adjacentRoom)) Move(adjacentRoom)
to go in with white tiles	Describe(CurrentRoom)
and I don't see any glasses in this one so far too.	Fail(find (glasses))
And now I'm into a room	Move(adjacentRoom)
with a different floor pattern, white and gray	Describe(CurrentRoom)
and it has three glasses on the table.	See(glasses:3)
And I don't see any more glasses	[[fail(find(glasses:1))]]
<silent navigation>	Move(adjacentRoom)
hmm I was wrong <silent navigation>	
I'm going into the original room	Move(adjacentRoom)
because I thought that there were - yeah there's another- another room with no glasses.	rationale/explanation Infer(map)
So there- basically there are four rooms two of them have same type of tile pattern	Infer(map)
and one you have two glasses and a bottle and the other one you have three glasses and a bottle, mou- put on a table,	Infer(identity(glasses)) Report(intermediateResults)
so total of, five glasses.	Report-results

<retrospective -experimenter has informed subject of actual number of glasses>

ah I think I should have around them because they are square, so they can, I mean there is a possibility that one is covering the other. that is one possibility. The second is that uh I should turn 360 degrees. <chuckle>

<experimentor -strategy?>

Oh strategy was: complete one room at a time, go in, to the other room, which seemed to be the nearest

to where you were, and then try to get your bearings right and see which room you came in through, which must have, which will fail if you have yah, if you don't have them in a kind of a closed um figure. So I don't know if it failed or passed but... I counted two less.

<experimentor so you wanted to go from room to room?>

Yeah, I mean my basic thing was, complete one room at a time, which I did not but, that is what my strategy was, and then go from one room to the other and kindof remember that you have been to that room so my strategy was to try and remember the floor pattern, which failed, because there are two rooms with the same kind of floor. Ahhh yeah I mean that was my basic strategy.

Subject 23

Task 1

Participant's Utterances	***Coded***
Ok, umm, In the room I've started out in	Begin-task
there's a table, with three objects on it.	See(distractor) See(underspecified)
It looks like two of them are glasses and one's a bottle.	See(distractor) See(glasses:2)
So that's two glasses so that's two glasses.	Report(intermediateResults)
And I'm turning	Move(in CurrentRoom)
and I see, a doorway. Which appears to lead into another room,	See(AdjacentRoom)
so I'm entering that room now	Move(adjacentRoom)
As I enter the room, I'm spinning around, looking all around the room, to make sure I'm not missing any glasses.	Search(currentRoom) Fail(find(glasses:0))
Ok so, I'm entering another room with a table.	Move(adjacentRoom)
So even though I've spun around a little bit and this room looks kind of similar to the one I was in before the one I just came from, I'm pretty sure this is a separate room	Infer(Identity(currentRoom))
because there are four glasses in the room and one bottle.	Justify(Infer(Identity(currentRoom))) See(distractor) See(glasses:4)
So I'm going to say I'm up to six glasses now	Report(IntermediateResults)
And I'm entering into another room with	Move(adjacentRoom)
Aha! there's a, one glass on a chair in this room	See(distractor) See(glass:1)

Participant's Utterances	*Coded*
and again as I entered through the door I'm spinning around. <cough> looking for any object that don't appear to be part of... the floor or the walls.	Search(currentRoom) (occurs before previous -reported after)
And so moving through another doorway,	Move(adjacentRoom)
I'm back in the room I started in	Infer(identity(CurrentRoom) Infer(map)
and that gives be a total of oh uh seven glasses.	Infer(identity(glasses)) Report-results

. . -
<retrospective>

Ok so ah in this experiment I wasn't bothered with following a robot around so I was a little more free to look around at will. So when I started out I just kindof .. spun around, moved around to look and see what things were in the room and then once I identified the glasses which are little square blue things, on the table I would count those and then spin around till I found another door or a place to move through to go into a next room. And so And I'd just kindof repeat that for every room,... and make sure I panned around the whole room to, catch any glasses or other objects that might be glasses in the room.

Subject 28

Task 1

Participant's Utterances	*Coded*
OK, I'm in this first room and,	Begin-task
I can already see two glasses here on this table,	See(distractor) See(glasses:2)
which I'm supposed to count,	Report(relevance)
and a bottle,	See(distractor)
which didn't concern me.	Report(relevance)
This is the first room.	Infer(identity(currentRoom))
<silent navigation>	Move(in CurrentRoom)
Still two glasses here.	Report(intermediateResults)
<silent navigation>	Move(adjacentRoom)
S- this is the second room.	Infer(identity(currentRoom))
Its nothing, its, kindof empty.	See(nothing)
So I'm going to the third one. <silent navigation>	Move(adjacentRoom)
Third room.	Infer(identity(currentRoom))
<silent navigation>	Move(in CurrentRoom)
And there are one, two, three- four glasses possibly,	See(glasses:4)

Participant's Utterances	*Coded*
but I'll take, a closer look for-	Plan(search-for(glasses))
<silent navigation>	Move(in CurrentRoom)
yeah it seems to be four.	See(glasses:4)
Four plus two- six.	Report(intermediateResult)
First room had two and here four	Infer(identity(glasses))
- so I have six so far.	Report(intermediateResult)
Going into this fourth room. <silent navigation>.	Move(adjacentRoom)
I- it again seems to be empty. Vacant.	See(nothing)
<silent navigation> yup.	Move(in CurrentRoom) See(nothing)
So this is another one.	Move(adjacentRoom) Infer(identity(CurrnetRoom)) **
ok this is the seventh glass, seven - ah two, seven - eight!	See(glasses:2) Infer(identity(glass)) **
ok. Eight.	Report(intermediateResult)
<silent navigation> <experimentor prompts subject.> yes now I'm going into the next room. The next one, the following one.	Move(adjacentRoom)
I've so far encountered eight glasses.	Report(intermediateResult)
And this one again seems to be empty,	See(nothing)
so its kind of, successive rooms are empty, and again are followed by rooms with glasses.	Infer(maplayout) ??
Here's - ok here this it seems I'm wrong, it seems there's, maybe I've missed some in the other room.	Infer(wrong, previousInference) Plan(recheck(Rooms))
There's one glass here.	See(glass:1)
<silent navigation>	
Ok, eight, nine. Nine glass.	Infer(identity(glasses)) Report(intermediateResult)
Maybe I'll check this one again.	Plan(recheck(currentRoom))
<silent navigation>.	Move(in CurrentRoom)
Yah, now I'm going to the next one.	Move(adjacentRoom)
Nine so far.	Report(intermediateResult)
Ten, eleven, twelve. Twelve, thirteen.	See(glasses:4) Report(intermediateResult)
Nine, ten, eleven. Oh there are more than that. <silent navigation> nine, ten, eleven. <silent navigation>. Ten, eleven <said very quietly>. <silent navigation> plus <unintelligible> one. Thirteen. Ok. thirteen,	Searchfor(glasses):Move(in CurrentRoom) See(glasses:4) Report(intermediateResult)
I'm going to the next one.	Plan(move(adjacentRoom))
Oh [subject is stuck on the table- trying to go through it] I see, ok.	Fail(move(adjacentRoom))
<silent navigation>.	move(adjacentRoom)

Participant's Utterances	*Coded*
Thirteen.	Report(intermediateResult)
I'm going to the next one again.	Plan(move(adjacentRoom))
So far I have --- counted thirteen.	Report(intermediateResult)
This one, empty.	See(nothing)
Thirteen.	Report(intermediateResult)
And here is a table again. With glasses on it - two glasses,	See(distractor) See(glasses:2)
which makes if fifteen,	Infer(identity(glasses)) ** Report(intermediateResult)
<silent navigation>	Move(in CurrentRoom) : SearchFor(glasses)
And yes that's it. nothing else,	
so the next room.	Move(adjacentRoom)
Again seems to be empty.	See(nothing) **
No well there's another	See(glasses:1) Infer(identity(glass))
- sixteen.	Report(intermediateResult)
Am I moving in circles?	Consider ?? Infer(map) ??
Seventeen, eighteen, nineteen twenty.	See(glasses:4) Infer(identity(glasses)) Report(intermediateResult)
<silent navigation>	Move(adjacentRoom)
hhmmmm ahhh am I moving in circles.	Infer(map)
<silent navigation> twenty! <silent navigation>.	Report(intermediateResult)
Should have checked the wall.	Plan(Infer(identity(rooms)))
<silent navigation> <experimentor prompts subject.> <chuckle> well I'm still moving from - one room to the other and.	Move(adjacentRoom)
Its twenty-one.	See(glass:1) Infer(identity(glass)) Report(intermediateResult)
But I think its, I'm moving ins circles	Doubt Infer(map)
soooo. Maybe I've made an error before.	Infer(error)
Well I've no way to go back now. Twenty-one.	Infer(unrecoverable(error) Report(intermediateResult)
<silent navigation> Basically twenty-one. <silent navigation>.	[Moving] Report(intermediateResult)
No its, I'm same- going round - its same rooms	Infer(error) Infer(map) Infer(identity(room))

Participant's Utterances	*Coded*
but <silent navigation> so its four.	Discard(intermdiateResults) See(glasses:4) Report(intermediateResult)
<silent navigation> Four,	Report(intermediateResult)
I'm going back to this room again. <silent navigation>	Plan(move(adjacentRoom) Infer(idenitiy(room))
Five, six.	See(glasses:2) Infer(identity(glasses))
<silent navigation>.	Move(adjacentRoom)
No way! I've lost track.	Infer(error)
<silent navigation> I'm again moving and within this ... whole labyrinth. <silent navigation>	Move(adjacentRoom) [possibly more than once]
This is the same room I think.	Infer(identity(currentRoom)
So basically it seems to be that there is one here	See(glasses:1) Infer(identity(glass)
and two here	See(glasses:2) Infer(identity(glasses)
which makes three. Three and -	Report(intermediateResult)
there's nothing here	See(nothing)
<silent navigation>	Move(adjacentRoom)
Four here.	See(glasses;4)
Seven!	Infer(identity(glasses)) Report(intermediateResult)
So b- ah I think there are seven number of glasses.	ReportResult

<retrospective>

I - in the initial phase I- I thought there'll be lot of suites, and I read in this uh, task identification. So I thought it would move on from one room to the - another and I, I kind of made a mistake of thinking that there are many room, which is was not. Eventually I found out a pattern and I should have checked the wall patterns, which should have been a clue to me that there are not too many rooms there. But by that time I had made an error and I had counted too many glasses but, then I saw is kind of pattern I am following so there, it seems that chair is coming back and the table is coming back. So I went back and saw that they're possibly not many rooms there. Three or four rooms, one room empty so I- I just checked back and saw that just, there are, in fact, in one room there are four and in one room, two and one in, one empty table, on the chair there's one more so that adds up to seven.

<even though the glasses all looked the same, you were able to count them>

yes - no problem with that.

<any intuition why?>

possibly because of their, shape that they are kinda - the same shape and size. kindof cuboid- shaped glasses. And uh, all of them are pretty much same it looks like.

<but because they look the same - If I was in the world, I could have moved them from one table to another.>

Oh that might be, I mean. Are you trying to say that then if we change the table and the glasses, I mean, how did I count those - is that what you are implying?

<yes, because they were all the same looking - but you were able to count them - any intuition to how you could tell them apart enough to count them even though they looked alike?>

actually, Its not because of the glasses as such but because of the surroundings too. Because the glasses I mean, that, that, that wasn't how my intuition worked. Because I saw in one room there were - I mean the placement of the glasses. In the table and in the chair and uh - uh sometimes uh yeah its basically on the table and chairs so, the, I- Its not the glasses and shapes and sizes per se. But where they were kept also helped me... in finding out. So its kind of elimination.

Subject 31

Task 1

Participant's Utterances	***Coded***
Alright.	Begin-task
Looking around,	Search
I see two glasses,	See(glasses:2)
that one, does that count as a glass? The wine bottle?	See(distractor) query(experimentor)
Okey. So that's two glasses so far.	Report(intermediateResult)
Looking around this room,……	Search(currentRoom)
going in this next room…	Move(adjacentRoom)
not seeing anything. *<experimenter prompts>*	See(nothing)
okey. Going into the next room,	Move(adjacentRoom)
looking left, looking right,	Search(currentRoom)
see a table,	See(distractor)
with three, three glasses on it, actually four. . .	See(glasses:4)
Now going into this room with the charcoal board floor,	Move(adjacentRoom) Note(identity(room)

Participant's Utterances	*Coded*
. mmm. . . seeing one more glass on the chair	See(distractor) See(glasses:1) Infer(identity(glass))
and back into the first room that I started in.	Move(adjacentRoom) Infer(identityRoom)
So a total of six glasses.	ReportResult

[experimenter makes a comment] unless I miscounted. *[experimenter asks some things about the count]* ah okey seven then.

[retrospective]

mm i guess I just kind of based it on the fact that they would be stationery throughout the rooms and there was nobody else in there.

Subject 33

Task 1

Participant's Utterances	*Coded*
I move forward	Move(in CurrentRoom)
to explore the room.	Rationale:Search(currentRoom)
I've gone around	Move(in CurrentRoom) :past
and see the objects kept here	See(objects) See[distractor] ?? See[Glasses:??)??
and I see the entrance to the other rooms from this very room.	See(adjacentRooms:2)
I can see here a table.	See(distractor)
On top of this table are two glasses	See(glasses:2)
and a bottle.	See(distractor)

Participant's Utterances	***Coded***
I move out of this room and start entering into the other room	Move(adjacentRoom)
just to find out the things there.	Rationale:Search(adjacentRoom)
……. As I enter into this,	Move(adjacentRoom)
I find that this room is starkly empty……	Search(currentRoom) See(nothing)
I'd like to go back to the previous room where I saw another entrance to one of the other rooms.	Plan(move(previousRoom))
So I had to go toward that room	Infer(identity(room)) Move(adjacentRoom)
…….*[experimenter says something in the background]*	[Subject does Move(adjacentRoom)]
yeah those room has one object, has two objects, sorry.	See(objects)
Ahhh, does it (?)	doubt
chair in the corner of the room and, with a glass on top of it.	See(distractor) See(glasses:1)
……i move to the room, to the next room.	Plan(Move(adjacentRoom) Move(adjacentRoom)
I can find there a table having ….having a glass bottle on top of it and four glasses.	See(distractors) See(glasses:4)
……. *[experimenter says something]*	
I'm just looking to see what other things, what other things are there,	Search(currentRoom)
but I can't find any yet. other.	See(nothing-new)
So I just move over this room	Move(adjacentRoom)
to find other one.	Rationale
…… And I just glance around and see if there are any other things……	Search(currentRoom)
This room is	
….I move to the corner of this room.	Move(in CurrentRoom)
No. There is nothing in this room again…..	See(nothing)
I move back to the room…	Move(in CurrentRoom)
I move into the other room having a different entrance ….	Move(adjacentRoom)
But I think I have not gotten to the room where I had come from…. having same….	Infer(identity(currentRoom)
I just move into the other room from another entrance.	Move(adjacentRoom)
To my surprise, I have come back to the same room again.	Infer(identity(currentRoom)
… I move out of it…….	Move(AdjacentRoom)

Participant's Utterances	*Coded*
I think I have about finished with watching all the rooms.	Finish-task
Yeah. I've seen seven glasses.	Report-Results.

[experimenter says something]

[experimenter in the background: retrospective/strategy] Like it's ahh, foremostly, it's just a group of four rooms. Ah, I'm going from one room to the other. I'm seeing that the color of the floor changes. In this way I am able to distinguish between the different rooms. I start from the first room, ammmm I see the ah the number of glasses. And moving to the next room, I can just add them up. When I reach back to the room from where I had started, I can just find out that I reached the same room and therefore, the ah total number of glasses I have seen, I just add them up and give the answer.

[experimenter asks how the subject was able to distinguish between the glasses even when they looked the same] ah because they are lying in the different rooms. That's why. They are different.

Subject 34

Task 1

Participant's Utterances	*Coded*
I am this room and I have to count the total number of glasses. um in the, you know, in each of the rooms that I enter,	Begin-task
so in this room there are two glasses.	See(glasses:2)
I leave this room,	Move(adjacentRoom)
just quickly look around	Search(currentRoom)
to see if there are any more lying on the floor.	Rationale:find(glasses)
And I leave this room. Enter the other room.	Move(adjacentroom)
Are there any here.	Search(currentRoom)
no.	See(nothing)
I leave this room and enter the second room.	Move(adjacentRoom) Infer(identity(adjacentRoom))
Hmm is this the same room as that one?	Speculate(Identity(currentRoom))
The floor looks the same.	Rationale(PIO)
There are three glasses here	See(glasses:3)
so total five up till now.	Report(intermediateResult)
Three or four? four.	See(glasses:4) ReEvaluate(intermediateResult)
Six till now. Six	Report(intermediateResult)

Participant's Utterances	*Coded*
any more lying on the floor?	Search(currentRoom)
no.	See(nothing)
Six.	Report(intermediateResult)
Plus. I enter the next room.	Move(adjacentRoom(
Trying to see if there are any more glasses.	rationale
Six till now.	Report(intermediateResult)
Iiiiii th- ..... hmmm I think this is the same room.	Infer(identity(currentRoom)
Because ..... yeah!	Rationale:incomplete
I think there are total six glasses.	Report(intermediateResult)
Because this room is the same room that I entered initially.	Rationale: Identity(rooms)
Are there any more rooms?	Evaluate(map)
<silent navigation>	Move(adjacentRoom)
no! Whats this?	ReEvaluate(intermediateResult)
Oh seven!	Report(intermediateResult)
there's one on the chair.	See(distractor) See(glasses:1)
Hmmm thats pretty indistinguishable.	Comment
So let me check once more.	Plan(recheck)
Seven	Report(intermediateResult)
<silent navigation>	Move(adjacentRoom)
Seven.	Report(intermediateResult)
One two three four,	See(glasses:4) Report(intermediateResult)
... so this must be one here too somewhere in the corner. ...	Infer(location(glass) Search(partof(currentRoom))
no.	See(nothing)
Ssssssseven.	Report(intermediateResult)
<silent navigation>	Move(adjacentRoom)
I think there are seven glasses in total.	Report(intermediateResult)
Four	Report(intermediateResult)
five six seven.	Move(adjacentRoom) See(glasses:??) Report(intermediateResult) Move(adjacentRoom) See(glasses:??) Report(intermediateResult)
Yeah.	Report-result(last(intermediateResult))

<retrospective>

Um I was just looking at the number of glasses in each room, and I mean, I had to find ah- I realized that you know I was moving around in the same space, so- I mean I just counted the visible glasses that I saw. And then once I entered, reentered the same room, I didn't count them any more.

<glasses looked alike any insight on how you counted them anyway?>

yeah because there were four in one. Because of the, I, the quantity was, the one which helped me to count. Even though they looked alike, but since there was two in one, one on the chair, and four on the table. Therefore I had to, I could distinguish by quantifying. By the quantity. So it probably would have been difficult if the room was entirely the same. And there were, you know, four glasses here and four glasses on the other table. But.

Subject 41

Task 1

Participant's Utterances	***Coded***
Just looking around the room.	Search(currentRoom)
I have to look for the number of glasses in the whole of this suite right?	Query(state (task))
<silent navigation>	Move(adjacentRoom)
ok three.	See(glasses:1) Report(intermediateResult)
<silent navigation> three.	Report(intermediateResult)
<silent navigation>	Move(adjacentRoom)
That will be <silent navigation>	Search(currentRoom)
Six glasses. <silent navigation>	Report(intermediateResult)
Yeah. <experimenter prompts subject.> Yeah I'm just looking through the room like, its kind of confusing, from different angles, you don't see the number of glasses actually.	Move(currentRoom) rationale:Search(currentRoom)
Like these are two.	[unvoiced move(adjacentroom) twice] See(glasses:2) Report(intermediateResult)
And from ... in this room.	Move(oppositeRoom)

Participant's Utterances	*Coded*
Yeah in this room like, this seems like three glasses, but from a different angle, thats like four glasses	Move(currentRoom) Search(currentRoom) See(glasses:3) See(glasses:4) Report(intermediateResult)
so thats .... <silent navigation> yeah.	Move(through, Map) Searchfor(glasses already seen)
Thats six glasses.	ReportResults

<experimenter tells subject actual number>

<retrospective>

um ok, basically, what I saw was on the table, I don't know wha- there were seven glasses on the table? ok, so there were some, on- somewhere on the floor.

ok, now, ah what my perception was that, I was looking for glasses on the table and somewhat around the room, but uh, I didn't find them.

<so the glasses you saw looked jut alike>

ah yeah

<but you were able to count them anyway - and intuition on how?>

ah Nothing, I could just, um figure out the number of glasses from different angles which I had just told you, and uh thats basically how I came to know the number of glasses.

<and how did you know that I didn't have a robot wondering through moving the glasses?>

um because I didn't see- yeah ok thats the only thing, but like uh, I was moving through the room like in a random order, I went through clockwise once, I went through anti-clockwise once. So it was kindof, ah, theoretically obvious that there was uh, no one else in the room other than me.

<ok, you found glasses in the room you started in. And you found more glasses, so how did you know they were not the same?>

Hmmm basically, ah in a three-dimentional environment like this is. the rooms from the entry point and the exit point the rooms seemed different. So when I'm in one room I can make out like, this one one room, and that's another room and that's another room. so the glasses in this room are different from the glasses in that room, so. that way.

Subject 47

Task 1

Participant's Utterance	***Coded***
allright so,	Begin-Task
first thing I'm going to do, since I'm going to count glasses.	Plan(?)
Gotta have a strategy here for how to maneuver this. This is basically like any sort of maze type game, so we gotta have a decent strategy.	Necessary(Plan)
So I'm in the first room,	Label(currentRoom)
I see some glasses on the table, so there's two there.	See(distractor) See(glasses:2)
Let me look around.	Search(currentRoom)
The key here is gonna be care- being careful that I don't miss any just from um how I'm oriented and what occluding my uh my visual my viewpoint. um from any of the glasses.	Plan(Move and Search) Rationale:Prevent Occlusion
So two.	
Its, I'm moving into another room next to it,	Move(adjacentRoom)
it looks like an empty room	Search(currentRoom) See(nothing)
But wait a sec, I almost missed it.	Reevaluate
There's one on a chair,	See(distractor) See(glasses:1)
three.	Report(intermediateResults)
Here's another room, now,	Move(adjacentRoom)
I'm going to try to distinguish these rooms	Plan(Infer(identity(rooms)))
so I don't get lost.	Rationale:Infer(map) ??
Some of the, I can use some of the textures to help me with that.	Plan(Perceptually(identify(rooms)))
I'm in another room now.	Infer(identity(currentRoom)
I have one, two three, four.	See(glasses:4)
So thats seven total so far.	Report(intermediateResults)
I'm in another room here	Move(adjacentRoom)
and this one, looks like there's nothing.	See(nothing)
And then yes, then, whoops. <silent navigation>	Move(adjacentRoom)
I've circled around,	Infer(identity(currentRoom) Infer(map)

Participant's Utterance	*Coded*
make sure there are no other issues so seven total.	Report(results)

<retrospective>

Knowing that I coun't, knowing that I coun't distinguish which one of the glasses were which, I had to go by the room features to determine which rooms are which. And then that would provide me the appropriate context for determining which glasses are in which room. Was the strategy that I was trying to employ.

<and then when you were in a room..>

I used any other features to try and do it. The orientation of the glasses so that I wouldn't be confused like how they were arranged on the table. the furniture that was in the room. Um all that so, because the since the objects are so similar in the rooms, it would be hard just to say: well the room has a glass in it, therefore you know, have it or have I not visited it. So the only other way to sort of figure out if a room is something I've visited or not, is to try to figure out what other features allow me to independently determine which room is which. So

Subject 51

Task 1

Participant's Utterances	*Coded*
I'm just starting from a corner of the room	Move(inRoom)
so I, I don't miss any of the objects.	Rationale:see(all objects)
'k there are,.. two glasses here.	See(glasses:2)
Am I right? <experimenter asks subject not to write on the task description sheet> ok fine fine.	comment
and, here's a bottle and two objects, ah two glasses on a table.	See(distractors) See(glasses:2)
<silent navigation> <experimenter prompts subject> yeah, I'm just moving to another room.	Move(adjacentRoom)
To find other objects,	Rationale:find(objects)
but I guess it's empty	See(nothing)
..... I'm moving to the third room. <silent navigation>	Move(adjacentRoom) Infer(identity(adjacentRoom)
ok, ... ok and here there are some, there are one there's one bottle and four glasses on the table.	See(distractor) See(glasses:4)
So in total there are six,	Report(intermediateResult)
..... <experimenter prompts subject>	Move(adjacentRoom)
ok fine, usually I prefer to, ah take the corner first	Strategy(move(corner(room)))

Participant's Utterances	*Coded*
so that I don't miss a, miss any object and,	Rationale:See(all(objects))
ah then try for the other ones.	
This is an empty room.	See(nothing)
ah and I think, I don't think there's anything much, except a chair, and, yeah, there's a, ... there's a glass on it.	ReEvaluate See(distractor) See(glasses:1)
So in total it makes, some seven glasses.	Report(intermediateResult)
..... ah fine,	Move(adjacentRoom)
I think this is the first room from which I started.	Infer(identity(currentRoom))
....	Move(adjacentRoom)
because, it again opens in the.... white room.	Rationale:Infer(identity(currentRoom)/perceptually
There was nothing.	See(nothing)
But I'll again count to check, with that, whole thing.	Plan(recheck(all)
In here the two.	See(glasses:2) Infer(identity(glasses))
<silent navigation> Back into... next room.	Move(adjacentRoom)
Here's the third one.	See(glasses:1) Infer(identity(glasses))
<silent navigation>	Move(adjacentRoom)
and here are the four other ones.	See(glasses:4) Infer(identity(glasses))
.. those make them seven.	Report(intermediate(reults))
<silent navigation>	Move(adjacentRoom)
and this is the empty room, which doesn't have any object.	Infer(identity(room)) See(nothing)
...Fine so total there are some seven, glasses, in four rooms. In which, in one room there are two glasses, in one there are four And in theeee, third one there are one glass.	Report(results)

<retrospective>

uh, I generally take a corner of the room, so that, uh and I just look around on ninety degree angle so that I do- I can know where are the objects lying. And then I go to the object fo- to that object and uh to see how means - to see how many glasses are there. To just identify. So first of all I take, uh the total view of the room. to look uh where should I go first, means uh where are the object lying so that I can go in that direction. And then I, directly approach the place where the object is lying. And I count the, the number of objects. And, to be on the safer side, I uh counted the whole thing twice. So that I don't miss, If I have missed any object first, at the, at the, at the first time. I I don't miss it the second time. plus, means uh, I went in the revers direction so that, uh if I have missed a room in, by some uh, uh, lack of navigation, means if I have some navigation problem, then I don't miss it in the reverse order so...

<the glasses all look alike, how how did you decided there were seven of them?>

Ok because in the first slide, uh in the first uh simulation, ah when I saw the bottle and the glass, it was told me that its a square glass. And so I uh assumed that all the glasses in the next simulation, uh means all the objects of similar, shape and texture would be the glasses.

<but in the second one all the glasses looked alike but you still decided that there were seven>

ok from uh some some angle they looked just, the two glasses were coinciding so they looked one, but if you go to, some different angles, uh you can see the shape of uh shaped the distinguishable shape of the image, so uh, I could make out that this glass. If, if I go near to it then I'll see the edges and the tops of it etc. If I'm away then I'll see only one or two surfaces, so uh, uh wh- when I am near to the object then I can make out the shape of the of that object so that I an id- identify it.

<but even if you can see the shape and texture - you can't see them all at once, but you counted seven of them - how>

ok, they were apparently of the same shape, and of same size, and uh,

<then it could have been the same glass?>

yeah it could have been but uh uh I went from uh room to room, but uh ok they could have been same glasses but uh they were lying apart at some distance, they were, they had uh, pretty significant distance between then, so that uh I can, from certain angles we can see all the four glasses, and I could make out the idea that there are four different object lying on the table.

<but you could only ever see those four at once - but you decided there were seven - how?>

ok, uh because, the room was a difference because the floor, uh texture, the wall texture was different, the lighting was different. So that I could make out, this is a separate room. And I had, uh uh, the previous knowledge of uh, the rooms which I've traversed from, so uh I could make out this is a different room so these got to be, different objects, than the first one.

Subject 55

Task 1

Participant's Utterances	***Coded***
Ok	Begin-task
I see two drinking glasses on my left.	See(glasses:2)
<silent navigation>... <experimentor prompts subject> and I sssssfffffffff	Move(in currentRoom)
don't see anything else, any other glasses here, in this room.	See(other glasses:0)
So I move into the room, on my right.	Move(adjacentRoom)

Participant's Utterances	*Coded*
I don't see anything here.	See(nothing)
No glasses.	See(glasses:0)
So, after I move into the room, into the first-second room I move on to the room on the right of that room.	Label(currentRoom) Move(adjacentRoom)
And tch-ch-ch-cha. And its the same room room I think which I saw in the beginning,	Infer(identity(currentRoom)) **
having, actually I missed one glass there. There are a total of three glasses.	ReExamine(glass-count) See(glasses:3)
One was hiding behind the bottle I guess.	Rationale
I go out of that room. <silent navigation>..	Move(adjacentRoom)
three,	ReportResults(intermediateResults)
go out of the second room.	Move(adjacentRoom)
And now I come into a third room which I didn't, which I have not seen earlier.	Label(currentRoom) Infer(identity(currentRoom))
And this room has, one more glass.	See(glasses:1)
So a total of four glasses is what I have counted at present. <silent navigation> in three rooms. Four glasses.	Report(intermediateResult)
I go back. <silent navigation>	Move(adjacentRoom)
OK, I have four glasses.	Report(intermediateResult)
I don;t thinnnnk I have any other roooooooms, here.	Infer(map)
hmmm yeah, <silent navigation> <experimenter reminds subject of instructions to stop navigating as an indication of a final answer.>	
ok, ok, yeah okkkkkkkkkkkkk. hmmm four five. <sigh> I see four <sigh>	Report(intermediateResult)
Going back to the first room which I entered.	Move(room) Infer(identity(room)) **
Now I see four glasses here.	See(glasses:4)
So total of four plus one. Four glasses in this room and one in the other room on the chair.	Report(intermediateResult) [infer(identity(glasses)) ??]
Ah total of five. <silent navigation> yeah ok.	[move(adjacentRoom)] Report(intermediateResult)
And theeeeen I go, go to another room	Move(adjacentRoom)
which has, a table and two more glasses,	See(distractor) See(glasses:2)
so now there's a total of seven glasses, which I've counted as, till now.	Report(intermediateResult)
I move into the room, another room.	Move(adjacentRoom)

Participant's Utterances	*Coded*
ahhh ok, it seems to me I've already seen this room	Infer(identity(room))
and counted this one glass here.	See(glasses:1) Infer(identity(glass))
Ok I've counted this one too.	[move(adjacentRoom)] Infer(identity(glasses))
okkkkk. OK move into another room.	Move(adjacentRoom)
This rooms seems to be all empty. yeah, <silent navigation>..	See(nothing)
ok seven.	Report(Result)

<retrospective>

ok I started moving in the rooms, uh, one way I was trying to do it is, do it was, look at the, floor and see if the floor was different. And uh, that's actually got me confused at one time. Looks like there were two, room with the same flo- uh number of, the same floor type. and so when I first I s-so thats that is why I missed that one glass in that room. But when I took my second round, and I di- I didn't, I was just randomly moving about, and luckily I went into this room and I found out that the setting of the room was a little.....

Subject 60

Task 1

Participant's Utterances	*Coded*
All right to report the number of bottles - or glasses in the room.	Begin-task
In the first room,	Label(currentRoom)
theressss two.	See(glasses:2)
swinging around to see if there's anything else.	Search
There's one table.	See(distractor)
In the next room to the left,	Move(adjacentRoom)
is a room with a whole bunch of white squares on the bottom,	Label(currentRoom)
theres nothing in there.	See(nothing)
<silent navigation> The room, next to that one,	Move(adjacentRoom)
with diamonds on the wall.	Label(currentRoom)
there's three, maybe four, four glasses in there	See(glasses:4)
making a total of six.	Report(intermediateResult)

Participant's Utterances	*Coded*
Going into the next room from that one.	Move(adjacentRoom)
isssss another empty room.	See(nothing)
With, ooh one glass, on a chair.	See(glasses:1) See(distractor)
making, seven.	Report(intermediateResult)
And in the room after that.	Move(adjacentRoom)
Iss a table with, two more glasses on it? .. and a bottle,	See(distractor) See(glasses:2) Speculate(Identity(glasses))
.making a total of nine.	Report(intermediateResult)
And in the next room.	Move(adjacentRoom)
Its just another empty room. <silent navigation> there's nothing in it.	See(nothing)
The next room <silent navigation>	Move(adjacentRoom)
I think its the same one.	Infer(identity(currentRoom))
Sooo I think there's about <silent navigation>..	
wait, swinging around seeing if there's any more doors	Search(currentRoom for:doors)
there's four on the table in there.	See(distractor) See(glasses:4)
There's one on the chair in the other room.	Infer(identity(glass))
so thats five.	Report(intermediateResult)
<silent navigation>	Move(Rooms)
there's two on the table,	See(glasses:2) See(distractor)
thats six,	Report(intermediateResult)
seven in the other room.	Infer(identity(glass))
<silent navigation>	Move(adjacentRoom)
so there's seven... I believe. ... four rooms, seven bottles	Report(intermediateResult)
. <silent navigation> yes . <silent navigation> yup.	Move(allRooms) See(glasses:7)
seven.	Report(Result)

<retrospective>

The strategy would be, remembering how many I counted before and just adding the number onto that.

<how did you know there were seven in all - you got to as far as nine - but then decided on seven in the end.>

yeah because it, it looked like there was four rooms because I, saw, the room that looked the same, and there was nothing in there so, I went around and there were only four rooms that I, that I discovered and, there were only seven bottles in there but, I thought I counted two more, so I went around and I counted again. So I got seven out of it, because I counted, more.

<So the first time you miscounted because you weren't sure how many rooms there were?>

yeah

<so when you knew how many rooms there were, how did you decide how many glasses since they look alike, you only saw so many of them at once>

like the three dimensions, just to make sure that there weren't any behind it, that were like, covered by the one in front of it. So I went around to see how many there were, just to make sure it was that many, on there.

<but you never saw more than the four on the table, how did you know that the others weren't the same ones?>

they were setup in a different way so.. like it didn't have the bottle on it? or it did but, I don't. <chuckle>

Subject 66

Task 1

Participant's Utterances	***Coded***
OK,	Begin-task
So I'm just going to back up, just go around the room right now,	Move(in currentRoom)
just to see what, kinda scenario I'm in.	Rationale:gather-data(map)
So I recognize that I'm in a room with a table on, table in there.	See(currentRoom) See(distractor)
With, two glasses, you specified, and a, wine bottle.	See(glasses:2) See(distractor)
.. So, I'm gonna go back through, this room right here,	Move(adjacentRoom)
the tiled room, with the tiled floor.	See(currentRoom) Label(currentRoom)
Kinda stop in the doorway, look around a little bit. ..	Search(currentRoom)
See another chair, with glass on it. .	See(distractor) See(glasses:1)

Participant's Utterances	*Coded*
That accounts for, three glasses. .. yeah three glasses.	Report(intermediateResults)
just walking around the room.	Move(in currentRoom)
I'm gonna go through the door now. ..	Move(adjacentRoom)
Stop look around.	Search(currentRoom)
I count, four, four more glasses on the table, with another wine bottle.	See(glasses:4) See(distractor)
A total of seven glasses, and two wine bottles.	Report(intermediateResults)
walking around all the sides of the room,	Move(in currentRoom)
just to see. Just viewing the table to see if I ca-, get a better, better angle just in case there's more glasses or not.	Rationale:SearchFor(glasses)
So that's seven glasses,	Report(intermediateResults)
lets see. .. I'm walking to a,	Move(adjacentRoom)
white tile floor room	See(perceptual Qualities, currentRoom) Label(currentRoom)
with nothing in it, so far as I know. .. it's a blank area.	See(nothing)
<silent navigation> <experimenter prompts subject> all right, so I'm just like, going back and forth,	Move(in, currentRoom)
just to see if I covered every, spot of um, room, just in case I missed anything.	Rationale:Search-For(objects)
I went back into the original room I came in.	Move(adjacentRoom) Infer(identity(currentRoom)
Yeah there's still, two glasses there,	See(glasses:2)
So I went back into the tiled room, the second one I went into from the beginning	Move(adjacentRoom) Infer(identity(currentRoom))
just to make sure. Just counting again,	Rationale:confirm(intermediateResult)
yup three glasses.	See(glasses:1) Report(intermediateResult)
goi- going to the right, then going back through the door, to the white- the white room.	Move(adjacentRoom) [infer(identity(currentRoom)) ??]
And I found four more glasses here,	See(glasses:4)
yup, ok, I'm just going back to the plain room with nothing in it again...	Move(adjacentRoom) Infer(identity(currentRoom)??
So I counted, ok, so basically I'm ready. So I counted seven glasses.	Report(Result)

<retrospective>

basically I was like, first of all I did a three hundred and sixty degree angle, like I-I walked around in circles so I can catch every view just in case like, it looked like there were two glasses but there was actually three, so then after that, after I was sure there were two, I went into the- I recognized what what room I was in so that I knew that, I didn't over count those glasses again. So I went back into the oth- to the next room, just going into, like a square. Just walking around in a square basically. um And then I count- um I did the same procedure to the f- um as I did in the first room, counting the number of glasses there. I just added it in my head, and just kinda walked around, and then just like got familiar with whe- with where I was so I did repeat and glass bottles, just like counting or whatever.

<you said something about "you recognized which room you were in" and then you said something about not repeating glasses - could you be a bit more explicit about that?>

yeah, I wanted to make sure that I knew, I recognized objects, such as on the tile floor like, like the um, sq- like the square, type of like little detailed formations you have on the ground. So i- you know walked around the room, got the feel for it, and each ceiling and floor in each room was different, even the wall was a little bit too. So I make sure I un- er, I recognized and remembered each room so that in every- and I associate with the number of bottled in each of those rooms. So I just added, added them- added the number of bottles up as I walked through each of those rooms, so I didn't like repeat, any room that I knew I was already in.

Task 2 Codes

Task 2 Code transcripts begin here

Subject 2

Task 2

Participant's Utterances	***Coded***
ummm, <silent navigation> <experimenter prompts subject.>	Begin-task
I'm turning around in the room, to make sure there are no other glasses.	Search(currentRoom)
.. ah there are two glasses.	See(glasses:2)
Ah I am exiting the room,	Plan(move(adjacentRoom))
and, there are two door,	See(doors:2)
hm, I will go forward through this one, randomly. For no particular reason.	Choose(door) Strategy(random)
<silent navigation>	Move(adjacentRoom)
ok, I'm seeing if there are any glasses hidden here. ..	Search(currentRoom)
no, I guess it's not a, hide the glasses sort of thing.	Speculate(task)

Participant's Utterances	*Coded*
OK going through the empty room.	Move(in currentRoom) Label(currentRoom)
.. running into a wall. <laughs> .. getting bumped by the wall.	Navigational-Hindrance Move(adjacentRoom)
Ah, looking at a room, remarkably similar to the last one.	Notice(perceptually indistinguishable rooms)
Annd there are, two glasses.	See(glasses:2)
ooh ran into the table,	Navigational-Hindrance
.. checking out to make sure there are no hidden glasses.	Search(currentRoom)
And going forward, into the next,.. room.	Move(adjacentRoom)
looking remarkably similar, like a, a room I just saw.	Notice(perceptually indistinguishable rooms)
<silent navigation> without any glasses.	See(glasses:0)
Ah the ceiling in this one looks pretty cool. ohh nice linoleum. <chuckle> sorry.	Comment [Move(adjacentRoom)]
Ahh I'm heading towards the gl- table with the glass on it in this room.	See(glasses:1) See(distractor) Move(in currentRoom)
..Ahh and there are, once again, two glasses.	See(glasses:2) compare with previous sightings
Just checking out to make sure there aren't any,	Search(currentRoom)
yup just two,	See(glasses:2)
any behind,	Search(currentRoom)
I'm not supposed to count the bottle right? <experimentor repeats the task instructions about counting glasses.> ok.	Query(experimenter)
<silent navigation>, oh, going through another door,	Move(adjacentRoom) Infer(identity(door))??
into, wait, ar-ar-are the glasses are only going to be on tables or am I supposed to be on tables? or am I supposed to count these weird things on the wall? <experimentor tells subject that :"the things on the wall are supposed to be light fixtures">	Query(experimenter)
ok <silent navigation> ok checking out,	Search(currentRoom)
another bare room, don't see anything. ssss.	See(objects:0):loc(currentRoom)
Going to go through, into another room.	Move(adjacentRoom)
Am I going in circles? It certainly seems like it.	Speculate(map)
That is also a light fixture? that weird thing on the wall? ok <chuckle>	Query(experimenter)
ok umm also two glasses on the table. <silent navigation> yup just two,	See(glasses:2):loc(on table in room) See(distractor)

Participant's Utterances	*Coded*
there they are, in a similar room.	
Leaving the similar room.	Move(adjacentRoom)
Oohh, guess I ran into the table again.	Navigational-hindrance
ooh so now I'm in another gray room.	Perceptual features of room infer(different – currentRoom some-prev-room)
Checking to see,	Search(currentRoom)
uh not very many light fixtures in this one, thats a change.	Perceptual-features of currentRoom
.. ok passing through the grey dreary room.	Move(adjacentRoom) Label(currentRoom)
Oh, the table's in a different spot.	See(distractor) Infer(different position distractor prev-distractor)
<silent navigation> checking to make sure there are, ok, I guess I can just head towards the table.	Search(currentRoom)
Annd, .. <cough> having trouble maneuvering.	Navigational-hindrance
Two glasses,	See(glasses:2)
this is getting repetitive.	Comment ??
errr. looking around to see if there are any more,	Search(currentRoom)
because I sense that something is up.	Rationale:suspicion
Nope looks like its just two.	See(glasses:2)
Walking around the table, <hums a few bars>	Move(in currentRoom)
running into the table,	Navigational-hindrance
ok, just two,	See(glasses:2)
heading out of the room.	Move(adjacentRoom)
into, one of those, bare, grey rooms.	Perceptual-props(currentRoom)
making sure there's no table.	Search(currentRoom)
And leaving. <hums again>	Move(adjacentRoom)
oh! having hard time going through the walkway. <silent navigation>	Navigational-hindrance
annd in this room, there are, two glasses,	See(glasses:2)
that's astonishing.	comment
Hmm <sigh> allright, going out of that room	Move(adjacentRoom)
into the, oh this one kinda dark,	Perceptual-properties(currentRoom)
I might have been here before. <chuckle>	Speculate(identity(currentRoom))
allright, leaving the dark room.	Move(adjacentRoom)
Ahh, approaching the table. Looking around,	Search(currentRoom)
.. ahh and there are, two glasses.	See(glasses:2)
<silent navigation> all right, I'm leaving this room.	Move(adjacentRoom)

Participant's Utterances	*Coded*
subject becomes weary. <experimenter reads the line in the instructions to subjects "when subject has determines that subject knows the number of glasses, stop and report that to the experimenter"> what? <experimenter says it again.> Well haven't I been telling you that there are two? <experimenter reminds the total, in all the rooms>	Subject didn't really understand directions
I have, I have to have been counting? total them up? two! I was counting them. I mean we can listen to how many times I said two I guess. so ok so- uh that I see in total. ok.	Subject understands directions now
Well that was, ok so there's two.	See(glasses:2) report(intermediateResults)
.. I'm really bad at counting. Except in, when there's only two.	Subject reports difficulty
I was, c- wait, wait, how many numbers there are that I can find period? <experimenter repeats instructions again>	Query(experimenter)
am I going around in circles? <experimentor declines to answer but rather repeats instructions again>	Speculate(map) Query(experimentor)
ok, no wonder the rooms all looked the same and I was getting bored!!	Infer(map)
<silent navigation>	Quickly move through all rooms
there are four glasses! yes!	Report(results)

Subject 3

Task 2

Participant's Utterances	*Coded*
ok,	BeginTask
<silent navigation> <experimenter prompts subject> ok, I'm looking around the table. Looking towards, the other corners of the room.	Search(currentRoom)
.. now I'm going into this other room. <silent navigation>	Move(adjacentRoom)
I'm checking out this room.	Search(currentRoom)
I don't see any.	See(glasses:0)
So I'm gonna go out.	Move(adjacentRoom)

Participant's Utterances	*Coded*
<silent navigation> <experimenter prompts subject> oh oh I'm looking around this other room,	Search(room)
which appears to be empty.	See(objects:0)
oops, trying to find the door. ...	Move(adjacentRoom)
looks like the same room. <silent navigation>	Note perceptually Identical rooms Infer(identity room)**
oops, .. well <experimenter prompts subject> I'm going into this other room	Move(room)
because, it looks exactly like, .. the same uh...	Note perceptually Identical rooms
ok I'm done. two glasses.	Report(results)

Subject 14

Task 2

Participant's Utterance	*Coded*
Two glasses!	See(glasses:2)
<silent navigation - experimenter prompts subject> Oh I'm turning to my left. ok, I look around the room	Search(currentRoom)
and I find that there are two openings	See(doors:2)
ok so I decide to go through the first opening.	Plan(Move(adjacentRoom)) Label (door)
<silent navigation> I come into a second room.	Move(adjacentRoom)
I look around the room, look around.	Search(currentRoom)
I don't see anything,	See(objects:0)
but I see an opening there	See(doors:1)
so I move in, to the next room.	Move(adjacentRoom)
Ok I look around here	Search(currentRoom)
I find two glasses -	See(glasses:2)
um ok um then I see another opening there	See(doors:1) infer(identity(door))
so I decide to go - there to that room.	Plan(Move(adjacentRoom))
Turn to my left, I turn to my left, ah walk into the next room.	Move(adjacentRoom)
Um I turn around here.	Search(currentRoom)
I don't see anything.	See(objects:0)
So I walk back into the room I came in initially.	Move(adjacentRoom) Infer(identity(room))
So in total there are four glasses.	Report(results)

<retrospective>

Well I knew the direction in which I had gone thr- from - that first room. So it was like, taking a full circle and coming back to the point from where I started - so I knew there

were four glasses as a result.

Subject 16

Task 2

Participant's Utterance	***Coded***
Ok now the glasses not the bottles right?	Begin Task
Ok I'm I'm I'm moving around the room trying to find, trying to scan the room to see if there's any more bottles,	Search(currentRoom)
I didn't see any	See(extra glasses:0)
so I guess I'll go out this door,	Move(adjacentRoom)
to see if I can find any.	Rationale:find(glasses)
And I'll look, oh I'll look around this room. Turning, turning, turning, turning,	Search(currentRoom)
I see nothing in this room.	See(objects:0)
So I guess guess I scanned the whole room.	Infer(search all of CurrentRoom)
I'll go through this door.	Plan(move(adjacentRoom))
See if I can find anything .. in	Rationale(search(adjacentRoom))
- if I can get through the door.	Hindrance(navigation)
In this room.	Move(adjacentRoom)
Hmmm, I don't see anything, in this room,	See(objects:0)
besides li- oh theres,	ReEvaluate
is this the room I was already in?	Speculate(identity(currentRoom))
There's two glasses and a bottle.	See(glasses:2) See(distractor:1)
hmmm I think you're messin' with my mind.	
I'm going to try to go around the table, and into this room again.	Move(adjacentRoom)
This looks an awful lot like the room where I was in.	See(perceptual similarity: currentroom, prev-room)
<silent navigation>	Move(adjacentRoom)
And there's the table again... or a table.	See(distractor:1) Speculate(identity(distractor))

Participant's Utterance	*Coded*
They must not be the same one because there's only one glass on that one. <note subject error due to looking at it from the wrong angle>	See(glasses:1) Infer(identity(distractor))
Allrighty. Lets go through another door,	Plan(move(adjacentRoom))
whoops aahh come on.	Navigation hindrance
I'm gonna get dizzy here If I keep going back and forth like that.	[move(adjacentroom)] comment
To the left! to the right!	Search
Nothing in here so far.	See(objects:0)
Oh come on there must be another door.	Fail(expectation(find Doors:2))
I'm going through this door now.	Move(adjacentRoom)
oops. I can never go through the door's straight.	Hindrance(navigation)
Oh look there's another table.	See(distractors:1) Infer(different(curr-distractor, prev-distractor)
With glasses, and a bottle.	See(glasses:??) See(distractors:1)
Well lets see.	Speculate
And and there's two on that one,	See(glasses:2)
agghh I can't get through the doors. <experimenter notes to subject that subject is actually hitting the table - not the wall near the door> I'm stuck on the table huh?	Navigational Difficulties
So I gotta go around it. Now how do I get? I back up, go around it. Go forward. Turn, oops run into the wall. <silent navigation> turn left turn right turn left.	Move(adjacentRoom)
hmm another room, another table,	expectation
no table in this room. ohhhh.	ReEvaluate(expectation) See(distractors:0)
Going forward to the doorway.	Move(adjacentRoom)
looookie there! there's another little table.	See(distractors)
With a bottle on it.	See(distractor)
I'm getting confused now.	doubt
I'm also get dizzy if I don't stop going back and forth.	Comment
Into the room.	Complete(Move(adjacentRoom))
Am I going around in circles!? <experimenter informs subject that experimenter can't answer that question.>	Speculate(map)
ok <sigh> I'm going around in circles aren't I?	Infer(map)
And I gotta stop! 'cause I'm getting dizzy. <experimenter stops the timer and blanks the screen for subject to recover equilibrium for a few moments.>	Pause-experiment

Participant's Utterance	*Coded*
Go to the left of the table. Go forward. Turn right. oops Didn't go forward enough. Now turn right. Get around this stupid table. Go forward, turn left. Into the same room again.	Move(adjacentRoom)
And I turn left	Move(adjacentroom)
and I guess I'll find another table in this room.	expectation
There you are little table.	See(distractor)
Lets see. How many times do I have to go around through these? <experimenter reads the task statement again - including the key phrase of: telling the experimenter how many glasses there are.>	Query-experimenter
<sigh> How do I know when I am done through all the rooms, do I decide? <experimenter referring to task statement affirms this>	Query-experimenter
ok I - lets try this one more time. See if there's any more rooms.	Plan(explore rooms) Plan(find Rooms)
Ok and lets go to <sigh> through this door.	Move(adjacentRoom)
<silent navigation>	Move(all rooms)
All right. I'm done.	
I think I've been around through these rooms two or three times.	Infer(map)
I will - what and I supposed to guess how many? or *decide* how many the- rooms I've been in? <experimenter reminds subject of key phrase of task statement about telling experimenter how many glasses there are>	Query-experimenter
<sigh!> I will, I going -	move
I think there's only three glasses. Because I think I've been going in circles.	Report(results) rationale:infer(map)

<retrospective>

well I looked at the ceilings and the floors, to see if they were the same or different and some of them were different and some of them weren't. And I looked at the glasses on the table, and I thought I saw one in one room and two in another, but apparently I didn't.

Subject 19

Task 2

Participant's Utterances	*Coded*
Ok,	Begin-task
now I am in a room,	See(currentRoom)
now how many more rooms,	Speculate(map)
I think there are twoooo,	See(doors:2)
ok. I'll start with this room.	Strategy(count starting here)
Ok. It has two glasses.	See(glasses:2) Strategy(concurrently viewed objects)
<silent navigation> <experimenter prompts> ok, Like now I have to find all the other rooms, how many rooms could there be in this building on the same floor I guess.	Plan(understand map) [move (adjacentrRoom??)
So now I, I st- I kindof start with this room which has a typical wall and ceiling combination.	Label(currentRoom) Identify (currentroom with perceptualy props) Plan – find other rooms
And I'll go forward to find if there are other rooms with glasses. ok.	Move(room)
And there's another room.	See(room) Infer(different Room prev-rooms)
Oh no its a similar room.	Perceptual props current-room ~~ perceptual props prev room
I oh <indecipherable> oh it cannot be the same room.	Infer(identity(current-room))
There's two -- two more glasses,	See(glasses:2) Infer(different Currentglasses, prev glasses)
there's four.	Report (IntermediateResults)
OK,	Move(room(s))
ah yeah, there's - the room I entered	See(room) Infer(identity(room)_
s that, I guess, diagonally to the first room	Infer(map)
I and it has the same combination of ceiling wall and floors!	See)perceptual props rooms)
and um I'm proceeding towards more rooms. I have to find all the other rooms.	Plan – find all rooms plan(understand (Map))
ok. <silent navigation>	move(rooms)
Now I am um finding the boundaries of all the whole building.	Plan(understand (map)) Move(all rooms)
And I guess there are four square rooms.	Infer(map)
And the total number of bottles I'd say are four.	Report(results)

<retrospective>

I'm mean, uh strategy was like, this time I really expected, I mean I had a broader uh, uh, like idea. I mean I thought like its going to be a floor or building ah and it will have some complicated architecture of rooms and now If I start from a first room, I have to always memorize. I have to think of a path, where I am going, always make sure of the direction. And what part of I m- how far I am from the first room and uh, and yeah I was, as I was remembering, trying to remember the color combination of all the room, I mean the the floor-wall-ceiling combination of all the room so that, I don't want to visit the same room twice. But as I figured, I thought it would be sort of maze, but it was very simple four, rooms. So it was kindof very easy. So thats it.

<experimenter asks: when you noticed that two of the rooms looked alike, um you went back and checked to make sure - >

actually, I was sure there's, if - if you go by proper architecture, its not going to be the same room. But I still double checked and I was a little confused because the other room, that was diagonally, had same combination, and the same table and glasses. So I thought it could be the same room, but I - I found myself in an angle in which I could see both rooms and both the tables so they are definitely different rooms and different tables.

Subject 20

Task 2

Participant's Utterance	***Coded***
Ok,	Begin-task
I look to the table on my left	Attend See(distractor)
and see two drinking glasses.	See(glasses:2) Strategy(concurrent seen objs different)
I'm gonna uh, swivel more to my left to see if there is anything else in this room.	Plan (search CurrentRoom)
I just went around in a circle to to my starting position.	Search(currentroom)
ah So so far there is only two glasses.	Report(intermediateResults)
Go to the right.	Move(in room)
I see a door,	See(doors:1)
I'm gonna go straight to the door,	Move(adjacentRoom)

Participant's Utterance	*Coded*
and there's another room.	See(newRoom) Infer(different curr-room, prev-room)
I'm going to go in the room a little bit more, to the center and just turn around to the right,	Move/search(currentroom)
to see if there's any glasses,	Rationale:find glasses
and I don't see any drinking glasses,	See(glasses:0)
um, I encounter another door to my- the right of the original door.	See(door) infer(different, door, prev-door)
And I'm gonna pass through that.	Move(adjacentRoom)
Uh now in the center of the room	Move(in,room)
I see- ... annnnother table.	See(distractor) Infer(identity(distractor))
Um, with two drinking glasses,	See(glasses:2)
I'm just, just curious to whether or not this is the same room.	Doubt see(Perceptually indistinguishable rooms)
So I'm going to go back and retrace that, my steps.	Plan(recheck(map))
Aahm. I went back to the prior room that I was in. Make a left.	Move(opposite room) Infer(identity(currentRoom)
Ok, its separate rooms.	Infer(map)
So I'm going to go back to the, the room that I found.	Move(opposite room) Infer(identity(currentRoom)
ah. I don't know why I thought it was two, the same room.	??
Um so I see two more drinking glasses.	See(glasses:2) Infer(glasses in different rooms ~> different glasses)
So its a total of four drinking glasses so far.	Report intermediate result
Um, and I see another door to my right	See(doors:1) Infer(identity(door))
so I'm gonna go through that.	Move (adjacentRoom)
and I'm in another room,	
an empty room.	See(objects:0)
And I'm just swiveling around to my right	Search(currentRoom)

Participant's Utterance	*Coded*
to make sure that there's nothing there.	Rationale:confirm(see(objects:0))
And I see a door on the right,	See(doors:1)
nd I go through the door	Move(adjacentRoom)
aand I realize that I am in the same room which I started off.	Infer(identity(currentRoom) Infer(map)
So there's a total of four glasses in this series of rooms.	Report(results)
That was really weird, I got .. messed up there for a second.	??

<retrospective>

um I just, I guess the strategy, I was just trying to get my surroundings first and um, and go. I guess logically step through ok go to the right, ok theres a room there, you know go around that and then ok I see another door, go into that and just successively try to explore each room as I went into it. And then like I said, when I got lost when I got to that third room and I thought it was the original, I backtracked. To - to make sure that it wasn't. then I went forward in the same steps.

Subject 26

Task 2

Participant's Utterances	*Coded*
So…	Begin-task
okey *[experimenter prompts subject]* okey..yes so	Subject has trouble vocalizing while navigating
on the left I have this table.	See(distractor)
I have, I could see … two glasses set on them.	See(glasses:2) infer(concurrently seen obj ->different)
I just want to look around and see if there are any more glasses either on the (deep intake of breath) floor or on the other wooden structure like this.	Plan(search(currentRoom))
I just kind of go back, take a full view so that I don't miss anywhere.	Search(currentRoom)
I doubt whether I'll be able to come back here, if it's going to be a maze or something.	Speculate(map) Plan/strategy

Participant's Utterances	*Coded*
So, before going into the other rooms, I just (deep intake of breath) see …where these two are leading into.	Plan(look at both adjacent Rooms before entering one
Okey. So. I'll see the one closer to me on the right, (deep intake of breath)	Move(near, adjacentRoom)
and … ahh….. I'm just looking around….	Search(adjacentRoom)
i don't see any glasses,	See(glasses:0):loc(adjacentRoom)
this room is empty. (deep intake of breath)	See(objects:0):loc(adjacentRoom)
So…okey, let me just go to the next room	Move(adjacentRoom2)
which I think would be parallel to .. room .. room I have entered …before I have taken this room.	Infer(map)
So… this looks similar to that room.	Note(perceptual similarity)
Soooo. …Wait a second, I'll just..so.	Recheck(curr-room vs prev-room)
No. This is another room.	Infer(identity(currentRoom))
Then, this room (deep breath), I just entered the end of the room	Move(??room)
… I just came from and .. (deep intake of breath) I have taken the second choice of rooms.	Identify(room)
I don't see anything here.	See(objects:0)loc(currentRoom)
So… I just take the room	Move(near adjacentroom)
that is the intersection of the other two rooms.	Infer(map)
So…. There should be….yeah…	Expectation:see glasses
I can see… two more glasses here	See(glasses:2):loc(currentRoom)
… and from here I can see the other room where there is a table also.	Strategy:see concurrently – two rooms containing glasses
Anddd ah, let me see if there are any openings out from here. (deep and long breath, subject clicks the keys)……	Search for Doors
aaa, all these rooms relate to the same place.	Infer(map)
.. … (deep breath) wait. …..yeah. let me just check if these two rooms are the same.	Strategy (infer (map)) Strategy – note perceptually indistinguishable rooms
Yeah. I can see a ledge of the table… here and there, yes, okey so.. ..	note perceptually indistinguishable rooms
(deep breath) I'm just trying to find out whether there are any of the openings or there are any other rooms that you can go from here….	Plan(infer(map)) searchfor(doors, all rooms)
I think there are only these four rooms available here…	Infer(map)
let me just check out once more (deep inhale and exhale)	Recheck Plan(Move(all rooms))
oh… I will retrace the same pattern I took (deep breath)	Plan(
… right now I can just find four of these glasses	Report(intermediateResults)
..now I'm just looking all around the room	Search(currentRoom)

Participant's Utterances	***Coded***
..ah and I don't think there are any other rooms left here	Infer(map)
…… ah….. no..(deep breath)….mmm….are these light fixtures? *[experimenter responds]*	QueryExperimentor
ah okey….they look like glasses, isn't they?	comment
(deep breath) okey…there is nothing on the floor.	See(glasses:0)loc(on floor)
Okey, let me check on the floor once more.	Search(floor)
(deep breath) ah I have this vague guess that there may be some more	Expect other glasses
..but …I am not able to find it, find them.	Fail expectation
I will just make sure.. (deep breath)	recheck
um, okey there was four. I'm seeing as much as I can see? No. ah. (with a hint of a smile) It is not logically possible. Ah *[experimenter makes a comment]* that's it. *[experimenter continues with his comment]* yeah. (deep breath) so… that's it. Yeah. That's it. *[you're done?]* Yeah. Four.	Report results

[experimenter..] yeah. *[experimenter talks in the background]*

[experimenter asks retrospective] These glasses……. Ammmmm…. Counting wise, you see two three separate things and the, the main thing was, I, I am sorry to, in just ah look back into the previous task, but in that one there was a glass on the floor so I was seeing all the possible places where that glasses lay. So, I was looking for them on the table, to be set on the table to be on the floor. So… I just made sure that ..that I just check every possible like space on the floor as well as on the tables (sniff).

[experimenter asks further question: if all the glasses looked the same, how were you sure that there were four glasses…..]

four glasses. Hah. Mmmmm. That was like I wasn't thinking actually but I, I guess I could see the separation between those two glasses like, there was a bottle kind of and, there were two glasses at different distance from each other, slightly. *[experimenter says something]* yeah *[more experimenter – how did you know there were two different glasses…..?]* but they look the same like that room and this room, they look the same but, anyway, amm, are you telling me that … the orientation of the glasses they were pretty much the same as in the twoo..the previous room that I came from. So… I guess, that's about it.

[so thank you. Do you have any questions to me about what I am doing?]

Subject 32

Task 2

Participant's Utterances	***Coded***
So I'm starting up in a room.	Begin-task
It's got a table.	See(distractor)
Two glasses.	See(glasses:2)
There are two entries.	See(doors:2)
Both look familiar. Same actually.	Note(perceptually indistinguishable doors)
I'll take this one. Walk straight.	Move(adjacentRoom)
Turn left.	Search(currentRoom)
Room is empty.	See(objects:0)
Walk straight.	Move(adjacentRoom)
I see two more glasses.	See(glasses:2) Infer(different seen-glasses, prev-glasses)
I'm turning left. More left.	Search(currentRoom)
So that will be actually four glasses with two table.	Infer(identity(glasses)) Infer(identity(distractors))
I'll just cross check it. Turn right.	Move(rooms)
That's it. That's, there are actually four squares of rooms.	Infer(map)
I've reached where I started.	Infer(identity(currentRoom))
And right opposite rooms have got a table and two glasses each.	Infer(map) infer(identity(glasses))
So that will be a total of four glasses, and two bottles and two tables.	ReportResults

[experimenter asks if the subject is satisfied and how many glasses he saw] Okey. There are four glasses.

[experimenter asks for a retrospective-strategy] ah, I started from one room and.. the the moment I walked out into the second room, I could somehow realize that there are going to be four rooms. So I just like ah, when I actually realized that there are probably there are going to be four rooms, maybe more than that ah, in a straight line. So what I did was ah, when I was standing, I took a right and I went straight into the room that was empty. And again, when I took a right, sorry, left, then there was a room. So there was a kind of, you know, symmetry that there was opposite rooms having two glasses and opposite were empty. So right from that room, the third room, I could see that the fourth one had no exit. So I could actually realize that it's a kind of square, and there are actually four square rooms within a square, big square room. So, basically how I was going around was from the very start, like when I reached the third room, I came to know that this is actually the end, probably this is the fourth room and it's got no exit. So that will be actually two rooms and two rooms with two glasses each and a table and two rooms that actually look empty. So, it's a kind of symmetric rooms, if you have one line, two lines of symmetry.

[experimenter asks further questions]

well, actually, I couldn't understand. I'm like ah, the basically how I was actually counting the glasses was, I was having a look at it. Since it was very simple and neat (?), there were not too many things in the room that can actually confuse you. So it was a right table right in the center of the room. And you very clearly told that you are looking for actually glasses. So it's like you are more focused on ah what you are actually looking for. So just like in a normal video game, if you are playing, you know if you have to shoot someone, and ah you have to actually differentiate between a civilian which you are not supposed to shoot and ah probably a soldier which you are supposed to shoot from opposite armies something like that, then you are pretty well aware of the fact that you are actually looking for a guy who is actually going to wear a military dress and this is actually very peculiarly is what you are looking for. And probably civilian will be sometime some more like in a white dress or something like that. You know, some kind of dress, so that you can recognize by vision. So it was pretty much just similar. I know what I was looking for and I started counting it because I was supposed to do that. And since there were just four rooms, task was very easy – counting the glasses. And that was actually how I was going about counting the glasses.

Subject 36

Task 2

Participant's Utterances	***Coded***
So Okey. Aha. Alright.	Begin-task
So I'm looking around the room,	Search(currentRoom)
I see two glasses on the table and a bottle.	See(glasses:2)loc(currentRoom – ontable) See(distractors:2)
I'm going to the room on the right	Move(adjacentRoom)
…. And I'm looking around in here	Search(currentRoom)
…. There are no glasses in there because as I was looking for it, I don't see any.	See(glasses:0)loc(currentRoom)
I'm going into the second room	Move(adjacentRoom)
and in here, there are ..	Search(currentRoom)
two more glasses on the table with the bottle.	See(glasses:2)loc(currentRoom – ontable) See(distractors:2) Infer(Identity glasses) infer(different (seen-glasses, prev glasses)
.. I'm looking around.	Search(currentRoom)
And I'm going into the next room,	Move(adjacentroom)
which has no glasses again.	See(glasses:0)loc(currentRoom)
It's empty.	See(objects:0)loc(currentRoom)
Soo, oops!	Move(adjacentRoom) Identify(currentRoom) reEvaluate
..So there are four glasses.	Report(results)

[experimenter speaks in the background- strategy] I looked around annd… (whispering: counted them?) amm basically you walk around and I figured … oh like when I saw the second room and it connected to another room, I figured there were four rooms, I just connect that all together. So, I just kinda walked around in circle.

[experimenter in the background – how distinguish the glasses] Yeah, because… there was two doors that connected to each other. I'm not sure. Could have been the same…. Was it? (laughter) Was it like a mind trick or something? Was it really two glasses but it was really like….

[experimenter talks again] Except the tables. The tables were differently too. They were placed…the table was like, in one room was like that, and it seemed that the other one was closer to the doors whereas in the other room, it was farther away. It looked like it was farther away. So.. I also figured, there were two different rooms. Also it was a mind trick.

[experimenter talks again] Yes. And because the doorways, there was like two doorways and… the walls were just…you know you wouldn't feel to walk right back into the room using those kind of walls. It had to be like four different rooms. … I was probably wrong. Was I wrong? *[experimenter]* Okey good. Tryin' to be tricky.

Subject 40

Task 2

Participant's Utterances	***Coded***
'K	Begin-task
there are two, here- two glasses here.	See(glasses:2):loc(currentRoom)
And I'm just going, scanning the room around, seeing if there are any more.	Search(currentroom)
Then I'll go to the next room...	Move(adjacentRoom)
And Turn around to scan it again	Search(currentRoom)
<indecipherable> sees no one.	
Its the adjoining room, to the one I went too, I suppose so.	Move(adjacentroom) Infer(identity(currentroom))
Or is it the same one?	Doubt speculate(identity(currentRoom))
Oh well I'll just check it out. <silent navigation>	Plan(infer(map)) move((2) rooms)
This looks like a mirr- this is.	See Perceptually indistinguishable rooms
Oh this looks like a different room.	Infer(identity room) strategy – rooms in different locations are different

Participant's Utterances	*Coded*
yeah so there are about four glasses..	Report(intermediateResults) infer(identity(glasses)) strategy(glasses in different rooms ~> different
here. <silent navigation>	recheck
I think.. thats pretty much it I think, so.	
I'm just checking out, if there are any more rooms or not yeah,	Search(all rooms) for additional rooms infer(map)
yeah thats it, there's just four. So yeah.	Report(results)

<retrospective>

um because the shape of the glasses were literally given here. It was that one - the other one was a bottle. So I could distinguish the bottle from the glass because bottle was the longer one and the glass was smaller.

<but you could count them even though they looked alike - any intuition about how?>

it was distinguished because, there was, the edges of the glasses looked different. It was, two glasses like this. So I could distinguish the edges of the glasses as such.

<that works for the two on the same table, but what about others?>

There were four, ok, so I just scanned through the rooms, And I though-oh there were four different squares, so I though maybe they were two different rooms. That took me to go through the f- two other rooms. Because I wanted to be sure. Maybe I had a triangle also but I think it was square. So I feel it was a square so there were four different rooms so.

<and because there were different rooms you?>

yeah so there was -uh two each, so it becomes four.

Subject 42

Task 2

Participant's Utterances	*Coded*
Ok,	Begin-task
I could do this slower right? 'cause I'm not following, I won't have to rush. ok.	Query-experimenter Compare(curr-task, prev-task)
One, two.	See(glasses:2) infer(concurrently viewed glasses different)

Participant's Utterances	*Coded*
Ok now. <silent navigation> <experimentor prompts subject> two,	Report(intermediateResults)
I'm going around the room. I check the table over, and there's nothing on the table. Now I'm gonna go back in the room and see under the table, maybe there's some under the table on that side I thinking but I don't know how to get over there to see. Let's see <silent navigation> I'm just checking behind the table to see if there's anything on the floor, if they hid anything back there <chuckle> No I don't, see anything back there, But I'm just checking to be sure. I don't see anything on the floor ok. <silent navigation> um lets go back here. <silent navigation> I wanna see. <silent navigation> I look under the table, I don't see anything under the table, anywhere under there. I don't think there's, if I go back I can't see anything right?	Search(currentRoom) Search(under distractor-table)
Ok there's none.	See(additional glasses:0)
Ok so I've counted two glasses so far.	Report(intermediateResults)
And maybe I'll get to the end of this room, and maybe I'll get out of there.	Plan(move adjacentRoom)
OK, here we go. Ok let's turn a little to the right here.	Move(in currentRoom)
Lets see what we have.	Search(currentRoom)
Counted two, I've counted two so far,	Report(intermediateResults)
Now let me see if there's an opening,	Plan(search for Door)
but let me just make sure, there's, there's no more in this room.	Plan(recheck -search)
Oh lets see how I'm gonna do that, go like that for a crawl around the room, make sure there's none in the room at all. <silent navigation> ok, go back like that, I think thats the wall, yeah we're on the wall so I'm checking all the way back. Ok I don't know what's going on. OK, lets go back a little. <silent navigation>	Search(currentRoom) Hindrance(navigation)
I gotta check that other room back there too but I don't know where I'm gong.	Mark(adjacentRoom1, later exploration)
I'm going out of this room this way, ok. <sigh> I might as well go this way,	Move(adjacentRoom2)
I gotta come back through there. <silent navigation> ok Lets see. Ok here. I hope I don't lose the other room back there. I don't lose my way. And I won't be able to come back in the other room.	Mark(otherRoom1, later exploration)
<silent navigation> ok lets see.	Search(currentRoom)

Participant's Utterances	*Coded*
Oh there's another room over there too I gotta check,	See(adjacentRoom) infer(different(seen-room, prev-room))
ok. <silent navigation> ok oh this, it doesn't seem to be any glasses here.	See(glasses:0):loc(currentRoom)
Oh let's look over here. Oh thats quicker. ok. Lets go this way. Oh I did it wrong ok there ok there we go, ok, Turn this way. Or this way, this way, ok back up here. Anything on the ground here. <silent navigation> ok. Now I think I'm.. doing better.	Search(currentRoom)
Ok lets go in here and check out the <unintelligible> over here and check this room over here,	Plan(move(adjacentRoom))
<silent navigation> <experimentor prompts subject> ok I'm gonna turn in that room.	Plan(move(adjacentRoom))
I wanna check this room right here. Ok now. There we go, ok, I wanna check this room out.	Search(currentRoom)
I don't see any glasses in this one.	See(glasses:0)
And I'm going, pretty quickly	comment
ahhhh not that way, how do I get to the,	Hindrance-navigation
ok, ok, now lets check this corner here.	Search(currentRoom)
I don't see any glasses in this room.	See(glasses:0):loc(currentRoom)
Now I forgot, which way I came in,	Doubt(identity(adjacentRooms)
oh with the table, with, I came in, ok. Ahh lets turn over here,	Infer(identity(adjacentRooms))
go straight out here. ... ok lets go. No! <silent navigation> ok now lets turn, go in here.	Move(adjacentRoom)
There's a room over here that I gotta check out.	Note(adjacentRoom) Plan(search(adjacentRoom))
OK . <silent navigation> there wouldn't be any glasses on the ceiling I would hope I mean <laughs>	Speculate(unlikely glass location)
ok what do we got here? Um I can't see if that's two glasses or one glass.	See(glasses:??)
Looks like one glass.... no its two glasses.	See(glasses:2)
Ok that makes four.	Infer(different, seen-glasses, prev-glasses) Report(intermediate-results)
Now are we in the same room? Now I can't figure out if I'm in the same room or where I ended up.	Speculate(identity(currentRoom))
There was f- there's two on this, two in here is, I thought.	See(glasses:2)
Ah I can't figure out, am I in the same room or is it a different room.	Speculate(identity(currentRoom))
<sigh> Well lets go into this room here.	Plan(move(adjacentRoom))
I counted four so far	Report(intermediateResults)

Participant's Utterances	*Coded*
but I don't know if I'm counting one of them over again. And I ended up in the same room or something.	Doubt Strategy(differentRooms ~> different glasses)
Ok lets go in here. <silent navigation>	Move (adjacentRoom)
ok yeah there's another table over there.	See(distractor):loc(adjacentRoom) infer(identity(distractor)
OK so I counted four glasses in all.	Report(intermediateResults)
Okkkkk. Thats pretty quick, Oh I go through,	Move(adjacentRoom)
ok, I check that room.	Search(currentRoom)
Or is that the same room, I think that the same room I was in before.	Infer(identity(currentRoom))
And we just count four in there.	Report(intermediateResults)
Ok, go straight in here.	Move(adjacentRoom)
I go 'round. ok.	Search(currentRoom)
Then we go right in here.	Move(adjacentRoom)
I think I checked everything and there's four glasses in all,	Infer(map) Report(intermediateResults)
ooks like – ah lets see, here we go,	Move()
l yeah there's four glasses in all.	Report(intermediateResults)
There's no more, around, no more openings.	Infer(map)
Ok there's four glasses in all I counted.	Report(results)

<retrospective>

um I checked underneath the tables and um ah the whole room from the side of the room and all over the room just in case there'd be any glasses on the, floor or anything. And I checked all around and everything and I didn't uh, f- I only found these four on the table. And um I was afraid I got lost when I found the table that looked almost identical to the other table and I didn't know if I had found the same thing over again or if I had gotten lost and ended up in the same room over again. So I um, it seems like I checked them very carefully, the rooms and made sure there was nothing else that I went around any everything and checked them all.

<you said you thought you might have been lost, how did you decide there were two rooms?>

Because when I went into the, I came in outa this room, into the other room and I saw the door opening and I saw the table sticking out or something in the other room and I knew I had just come out of this room and I saw the table in the other room so I knew that there was two roo- there was two tables and everything.

Subject 46

Task 2

Participant's Utterances	*Coded*
'k	Beging task
so the first thing I'm doing, is looking around this room here	Search(currentRoom)
to see how many glasses I count in this room.	Rationale:find(glasses):loc(currentRoom)
And I see two on the table,	See(glasses:2):loc(on table – in currentRoom) concurrently seen objs glasses
and I see two doorways going to other rooms.	See(doors:2)
So I count two glasses there.	See(glasses:2) Report(intermediateResults)
<silent navigation> moved into the next room,	Move(adjacentRoom)
and looked around,	Search
and I don't see any glasses.	See(glasses:0)
ummm I moved into the next room,	Move(adjacentRoom)
which also has,... two glasses on the table.	See(glasses:2) Infer(identity(room))
Bringing the total to four.	Infer(Identity(glasses)) Report(intermediateResult)
Then I'm moving into a third room.	Move(adjacentRoom) Infer(identity(currentroom)
Which is actually connects. theee,	Infer(map)
its an empty room	See(objects:0)
that connects the initial room.	Infer(map)
and I don't see any doors going any directions that I haven't gone.	Infer(map) strategy(new glasses will be in new rooms)
Ssso I count. four glasses.	Report(results)

<retrospective>

well I, for me obviously the main confusion here is that there's two very similar looking rooms, so what I, I wasn't when I first came into the- the second room with the glasses I wasn't completely sure that I hadn't wandered around in a circle and was back in the initial room. But I checked and saw that it is in fact, four rooms connected and then two of them each have two glasses in them and the other two are completely empty, so...

<so even though the glasses all looked alike you could count them..?>

yes... because they were in different rooms.

Subject 50

Task 2

Participant's Utterances	***Coded***
Ok,	Begin Task
right now I'm, standing next to the table.	See(distractor:1)
Scanning the room.	Search
There's two.	See(glasses:2)
backing up. <silent navigation> <experimentor prompts> I'm backing up	Search
just to make sure that you haven't hidden any under the table.	Rationale:(don't miss glasses)
OK now I'm going.... allright, through the door to my left. <silent navigation>	Move (adjacentRoom)
I'm scanning the room. <silent navigation>	search
and it hassss, another door that I, haven't been through.	See(doors:1) Infer(identity(door))
And I'mmm going through it.	Move(adjacentRoom)
<deep breath> and it looks a lot like the room I was just in.	Report(perceptual similarity to prev-room) Infer(identity(currentRoom))
<sigh> Scanning the room.	Search(currentRoom)
One bottle, two glasses,	See(distractor:1) See(glasses:2)
so four.	Infer(different(seen-glasses, prev-glasses)) report(intermediate Results)
<silent navigation>, going, just going through the, other door, in that room.	Move(adjacentRoom)
Scanning this room,	Search(currentRoom)
which appears to be identical to the room, diagonally from it, actually.	Report(perceptually-identical : prev-room) Infer(different(currentRoom, prev-room)
<deep breath> annddd. <deep breath> going through the second door in that room.	Move(adjacentRoom)
Which, appears to be bringing me to the same room that I was in initially,	Infer(identity(currentRoom))
but <silent navigation>,	Search(currentRoom)
yah, still two glasses,	See(glasses:2)
so... scanning that room again.	Search(currentRoom)
Is that it? Four rooms four glasses?	Report(Results)

<retrospective>

Well ok, I noticed the two in the first room, and I wanted to have so sort of strategy for going, through the rooms, I didn't know how many there were. So I decided to work on a, kind of a counter-clockwise, sort of progress which, worked out because there was only four rooms, <chuckle> but um, basically just

scanning every room, and,

<the glasses looked all alike, any intuition for strategies to decide that one glass was not the same as another>

Well I believed myself to end up in the same room I started in. So I guess I assumed they were the same glasses, although somebody coulda went in and changed them. <chuckle> The point was that basically I, I was going by, what rooms I had been in and I thought, Ok I've been here before and those are the same glasses that I already counted.

Subject 56

Task 2

Participant's Utterances	***Coded***
now I find myself in a room.	Begin Task
It has a table, <deep breath> a wooden table,	See(distractor)
on it,.. there is a bottle and, two squarish glasses.	See(distractor) See(glasses:2):loc(on table in currentRoom)
Now I am trying to explore the room to find anything else. Ummm. <silent navigation>	Search(currentRoom)
Now I am done with this room, I'm trying to explore another room. <silent navigation>	Plan(move(adjacentRoom))
I found two glasses in this room.	Report(intermediate-results)
I'm moving to a room adjacent to it.	Move(adjacentRoom)
And I am trying to explore this room.	Search(currentRoom)
I don't find anything significant,	See(objects:0)
so I'm leaving this room and coming back to he room where I originally was.	Move(prev-room) Infer(identity(prev-room))
There is one more room adjacent to it and I am trying to explore it now.	Move(adjacentRoom2) infer(different(adjacentRoom1, adjacentRoom2))
I do find nothing. Its an empty room,	See(objects:2):loc(currentRoom)
so I go back to the place where I originally was.	Move(prev-room/adjacentroom) infer(identity prev-room)
<silent navigation> I'm again trying to explore an adjacent room.	Move(adjacentRoom1)
<silent navigation> found another room,	Move(adjacentRoom) infer(different adjacentroom, prev-rooms)
which has got tables, there's a bottle, And two pieces of glasses.	See(distractors) See(glasses:2):loc(currentRoom)
<silent navigation>. Now I'm trying to explore this room. <silent navigation>	Search(currentRoom)
I have done with this room.	Infer(nothing more in room)

Participant's Utterances	*Coded*
and I'm trying to go to a new - adjacent to it.	Speculate(identity(adjacentRoom)) Move(adjacentRoom)
It seems that it was the room that was initially visited by me.	Infer(identity(currentRoom))
<silent navigation>	Move(adjacentRoom)
And I am now back to where I was.	Infer(identity(currentRoom))
So there are four rooms, two of them are well lit annnd ... the remaining two aren't that well lit. Two of the rooms contain tables, with glasses on them.	Infer(map)
... and in all there are four glasses that I observed. that's it.	Report(results)

<retrospective>

uhhh actually in this paper[the written instructions - experimenter], it's mentioned that there are squarish glasses. So I tried to find out objects which looked like that, maybe rectangular in shape. So I found a uh bottle like this annnd but it wasn't, uh it had a nozzle sort of thing on it, so I found out that its not a glass. Beside that there was another rectangular box, so I figured it out, its somewhat squarish and that how I perceived thats its a glass.

<once you figured out what glasses were supposed to look like, what strategy were you using, to count them>

the strategy, is like, look around the room for such kind of objects, and if I found them and I added to my count and similarly tried to explore 'nother room, and tried to find out whether there was anything else on it - and if there was something I tried to match my description, to what I perceive as a glass. And if it match then thats it.

<once you found things that looked like glasses, how did you know there were four and not two or six or whatever?>

ok so initially in the room that I was present. I found two such objects. Then I went to an adjacent room. I didn't find anything. So I came back to my original room right. Then there was another room adjacent to it. I tried to explore that. uh I didn't find anything. But initially when I had visited this, uh I mean, I can't give you the exact description, I saw another well lit room, and I just went 'round that, and I found out that, there were two well lit rooms. And so I tried to explore both, annnd basically count the number of objects in both the rooms. So thats how I came up to know that there were two rooms, containing two tables and it has got, both the rooms, in- on both the tables, there were two such kind of objects, so I added them up and that how I got four glasses.

<so you used the fact that the glasses were in different rooms, you were sure they were different rooms so you were sure...>

yeah basically how I found out was uh, if you go at a corner of a particular room, then its quite possible that you try to visualize on both the sides, you get, like, you see two, uh, each room has got two doors right? so if you go at a corner of a particular door or maybe room and if you try to see through both to doors, it seems like light is coming from both of them. So that's how I perceived that there are two rooms basically. well lit rooms, and I tried to explore them. Thats it.

Subject 58

Task 2

Participant's Utterances	***Coded***
Looking around the room	Search(currentRoom)
and I see, two glasses on the table,	See(glasses:2):loc(currentRoom, on table) See(distractor
and. <silent navigation> Going to the next room.	Move(adjacentRoom)
I find uh no glasses here.	See(glasses:0):loc(currentRoom)
so I move on to the next.	Move(adjacentRoom)
<silent navigation><experimenter prompts subject.> I just checked whether I came through this room or not again.	Notice(PIO room) Move(diagonal rooms)
I find another room,	infer(identity(CurrentRoom))
with two glasses.	See(glasses:2)
So right now I've seen four glasses totally.	Strategy(glasses in different rooms are different glasses) Report (intermediate results)
Now I exit this room again	Move(adjacentRoom)
. .... and ...	Move(adjacentRoom)
I seem to be going in circles	Infer(identity(currentRoom) infer(map)
and I guess four is the total count of glasses. <silent navigation> <experimenter reminds subject that to indicate being finished subject must stop navigating> ok, ah yeah four.	ReportResults

<retrospective>

Well, ah strategies I guess, <sigh>, I just counted the glasses which I saw in one room and I didn't verify it whether I entered the room previously or not, if it was the different room, I think, I again counted the were other glasses.

<so basically you decided the glasses were different based on different rooms?>

yes, yes!

Subject 61

Task 2

Participant's Utterances	***Coded***
Allright, Iii	Begin-task
I begin by scanning the first room	Search(currentRoom)
and I notice that there are, are two glasses.	See(glasses:2):loc(currentroom)
And uhhh It appears that there are no more glasses after scanning the room	See no other glasses
so I head into the next one. <silent navigation>	Move(adjacentRoom)
And there are no glasses in this room I,	See(glasses:0):loc(currentRoom)
I prefer spinning around, as opposed to the.... walking forward aimlessly I guess.	Search-strategy
umm I'm in the third room,	[Move(adjacentRoom)] Label(currentRoom)
and there are now, a total of... I count four glasses.	See(glasses:2) infer(different, curr-glasses, prev-glasses) Report(intermediate-results)
<silent navigation> <clears throat,> I... I move back and forth throughout the room just to, double check.	Search(currentRoom) recheck
I don't, I guess you could say I don't trust my eyes that much. I miss somethings sometimes.	Rationale:possible missed objects
I've returned back to the original room	[Move(adjacentRoom) twice] infer(identity(currentRoom))
. .. I believe. Yeah, its the original room.	infer(identity(currentRoom))
And, I counted a total of four glasses.	Report(intermediate(results))
Two glasses in two rooms and no glasses in the other two.	Report(breakdown of results)

Participant's Utterances	*Coded*
<silent navigation> <experimenter reminds subject that when subject has finished, to stop navigating, else talk about what subject is doing and why.> .. I'm just checking one more time.	Recheck Move(all rooms)
No I counted a total of four.	ReportResults

<retrospective>

Well I would, I would enter, after exiting the- any given room I would, I would sweep back and forth from left to right and if I saw anything in front of me, that I could identify as a glass I would count those, and at that point I was check to see if there is anything that I, I did not see behind me, and if so I moved on to the next room. And I did so until I made a complete, um, pass through all the rooms.

<"when you first went into the second room and you were looking around at the third room, you kinda looked at the third room and then went back and looked at the first room, can you tell me why you did that?">

ummm I was in the third room, could you repeat the question?

<experimentor does>

ahh I imagine I was just checking at the point um, to be honest ummm I don't really, like, when I- when I play games like this, um a lot of times there isn't a, a rhyme or reason to what I'm doing, I'm just kinda following instinct, like, perhaps I was, I guess you could say I was just checking to make sure that um, that there weren't any more rooms. or that that was where I started and this was where I had finished.

<"the glasses all look alike so how did you determine that there were four glasses rather than two or six or whatever">

Because they were in, they were in different rooms. I was under the impression that this was a-a four room floor. And that, um, when started as the first room. Thos, that room was distinguishable, the glasses in that room were distinguishable from the glasses in the, I guess that would be the third room. um hypothetically I could have just been in one room the whole time, but I'm, that wasn't my perception of the matter.

Subject 64

Task 2

Participant's Utterances	*Coded*
I am, in, the first room.	Label(currentRoom)
There are two glasses in this room.	See(glasses:2):loc(currentRoom)
There are two doorways from the first room.	See(doors:2)
I am going to, the first one, un which I start facing.	Plan(move(adjacentRoom))

Participant's Utterances	*Coded*
I'm entering the second room.	Label(adjacentRoom) Move(adjacentRoom)
The second room is empty..	See(objects:0):loc(currentRoom)
I'm following.... in, I'm going into the, next room,	Move(adjacentRoom)
sec- uh third room...	Label(currentRoom)
there are two glasses in this room.	See(glasses:2):loc(currentRoom)
That makes four.	Strategy(glasses in different Rooms are different) Report(intermediateResults)
I am going into the next room, through the doorway, through the opening in the ,wall- the doorway.	Move(adjacentRoom)
The forth room is empty also.	Label(currentRoom) See(objects:0):loc(currentRoom)
I am going to the,... [half voiced] fifth room. [normal voice.] I am going to the fifth room.	Label(adjacentRoom) Move(adjacentRoom)
Which appears to be the, original room, which I started in.	Identify(currentroom)
There are two glasses in this room,	See(glasses:2):Loc(currentRoom)
I'm checking to see if, yes, I'm checking to see if there are any other rooms,	Search for new rooms
there are no other rooms.	Infer(map_
There are.... four glasses, in the suite of rooms.	ReportResults

<retrospective>

um, at first didn't, I did not know how many rooms there are, and how do you arrange the rooms. So I simply picked a direction and go that way. until I felt that, until I see another room with glasses in it so I counted that. So I went to the other room, not- not knowing whether or not it arranged- how its arranged and g-go to. You know I found myself, you know in the first room. of- Of course I did not know that it was, or or I wasn't sure that it was the first room to begin with but then as I checked into the corridor or into this next room, I- it became apparent that it's actually a three hundred and sixty degree room, you know, series of rooms. So I'm, able to determine that there are four glasses, in the suite of rooms.

<when you looked at the glasses they all looked just alike, but you were still able to count four of them even though you could never see four at once, how did you choose four rather than two or six or whatever?>

well, itssss easy, its, you can distinguish between the glass and the bottle on the tables. annnd I counted two glasses in the first table, which is apparent, and I got to the next room with the glasses in it and there are another two glasses, with the bottle on the table so I counted those two. annd, remembering that there are two glasses there previously it's obvious that it's- there are four glasses that I've encountered so far. And as I get into the first room, like I said before uh, there could be six glasses if

indeed that was a fifth room, but there was not a fifth room so uh, logically there would be four glasses.

<so your strategy was that glasses in different rooms must be different glasses then?>

yes , because they're in different gr- rooms, except if um, there's some factor that moves the original glasses from the room to the second- to the second room, but I cannot see that so, I presume that there are four glasses, in total.

Task 3 Codes

Task 3 transcript codes begin here

Subject 4

Task 3

Participant's Utterances	***Coded***
I see one robot.	See(robots:1)
I saw another in the other room.	See(robots:1) :loc(adjacentRoom) Infer(identity(robot))
I saw two robot,	See(robots:2)
the same two robots at the same time	Strategy(simultaneous view)
so I know that there are at least two robots here.	Rationale:current count
<pause> oh three robots here.	Report(intermediateResults)
<prompted to explain more by experimenter> oh, I'm just trying to get a view of the entire room before I,	Plan(See(all, currentRoom))
I want to scan the entire room before I say how many robots I 've seen.	Plan(See(all, currentRoom))
So I've seen three so far.	Report(intermediateResults)
They're all here.	Report(Loc(robots, currentRoom))
Whoah there are two entrances to this room.	See(doors:2)
I might not be able to... < pause>	doubt
<indecipherable> there doesn't seem to be any robot here.	[subject Move(adjacenRoom) – no report] See(robot:0)
Let me just make sure that there is nothing in this corner.	Plan(search(currentRoom))
nothing in this corner.	See(robots:0)
Still three robots in this room.	[subject returns to near original room] See(robots:3):Loc(Room1):time:current

Participant's Utterances	*Coded*
Ok, I'll go to this room here.	Move(adjacentRoom)
I'm in a hurry because I want to make sure those robots don't escape into another room	Strategy(move faster than robots) Strategy(don't let robots leave room)
when I .. rate them as another.	Consequence:fail(strategy)
Oh.. are these different than the ones I saw before? <note they were not - but had more light on them>	See(robots:??) Speculate(PIO, robots-here, robots-prev)
Three in the earlier room.	
Two here..	See(robots:2)
let me just check.	Plan(recheck)
Oh, none over here .. now.	See(robots:0):currentTime
Ahhh White with black spots. this one is... white with black spots ok,	[subject moves in three rooms for this] Confirm (PIO, robots-here, robots-prev)
three.	Report(intermediateResults)
I think this was just the guy I had seen earlier going out of the room.	Infer(identity(robot))
So two here.	See(robots:2)
...	[subject moves two rooms]
Three there.	See(robots:3)
...	
five so far.	Report(intermediateResults)
going into another room.	Move(adjacentRoom) Infer(identity(adjacentRoom)
whoops. one two, scan the entire room with sweeping glance,	Search (currentRoom)
nobody here.	See(Robots:5)
I think there are five robots.	Report(intermediateResults)
Let me just make sure again.	Plan(recheck)
<subject moves quickly with no verbal reports>	[Move(adjacentRoom)
ooopp. Nobody in this room,	See(Robots:0)
<more rapid movement>	[Move(adjacentRoom)]
two in this room.	See(Robots:2)
I expect to see three here.	Infer(Robots:3:loc(adjacentRoom))
One, oop nobody,	
confused.	Doubt
<more rapid movement>	
Ok, um I'm pretty sure that there are five robots in these in these four rooms.	Report(results)

subject successful time 2:55

<retrospective>

I guess in the earlier experiment I was if there was a lot of time Do you want me to explain..? I wanted to, I guess the best thing would be to see all of them together. But since I couldn't do that I was trying to minimize the time between the two robots, because if I saw them after a long time I wasn't sure if I was seeing a new one. OK

Subject 5

Task 3

Participant's Utterances	***Coded***
Ok	egin-task
I am moving around this room.	Move(currentRoom)
I'm trying to find the robots,	SearchFor(robots)
and lets see, s-, doesn't seem to be here.	See(robots:0)
<pause> and I'm moving around the table	Move(in, currentRoom)
to see if its on the other side.	Rationale(Find(robots))
And I'm going out	Move(adjacentRoom)
because there's nothing that seem to be here.	See(Robots:0)
There are a couple of them outside it seems. There are two of them right here	See(robots:2)
<with surprise> three! three of them right here,	See(robots:3)
and then, there is nobody else here.	See(robots:3)
So I move on to the next room	Move(adjacentRoom)
and see .. if there are any here.	Search(currentRoom)
nothing here	See(robots:0)
and so I am moving to the next room. <navigates for a couple of seconds>	Move(adjacentRoom)
There's one here ... and nobody else here	See(Robots:1)
so I'm moving to the next room.	Move(adjacentRoom)
There's none here	See(robots:0)
- oh there's one here,	See(robots:1)
so there are. three and two, five.	Report(intermediateResults)
I'm moving to next room	Move(adjacentRoom)
and it seems to me that this is the <chuckle> same room,	Infer(identity(currentRoom))
but... not too sure.	doubt
<navigates silently for a moment> so there are one.. two, three. ... three.	Report(intermediateResults)
Four five <while navigating as rapidly as possible around the rooms> I think there are five robots.	Report(Result)

<retrospective>

I checked the room structure, like from where I am going to, which room, and I remember the past like from which, that table room, I went to the next room and I saw that there were three and when I came back I saw again the table room and again the three robots, I was sure I am looping around. So I just went back and checked that that room where there were like only two robots, one and one robots in two rooms and three robots in here I was sure its a like three or four room loop and I'm just roaming around so I just counted that.

I think it depends on the speed. the speed robots are moving and the speed you are moving. The total speed you can be and how fast you can navigate them if you are lazy, if you are slow, its very difficult to get the total number of count but if you are little, if you have consideration and you know how fast you are moving and they cannot move ... with that speed, that much speed so thats what I thought.

Subject 6

Task 3

Participant's Utterances	***Coded***
OK I'm in a room right now	Begin Task
and I can see a robo moving.	See(Robots:1)
So thats one,	Report(IntermediateResults)
thats another one.	See(Robots:1) Infer(identity(robot))
Two of them.	Report(IntermediateResults)
I see a robomoving in the other room	See(robots:1):loc(adjacentRoom)
so I'm moving and trying to go into that room.	Move(adjacentRoom)
And I see that there is a third one here.	See(Robots:1) Infer(identity(robot))
Thats the only one in this room.	See(Robots:1):Loc(currentRoom)
And yeah I can see a way out of this room also.	See(Door)
I'll move into that room. <subject does so silently>	Move(adjacentRoom)
yeah, now I'm looking around,	Search(currentRoom)
I can see... ah, two more robos in this room.	See(robots:2):loc(currentRoom)
So thats a total of five of them.	Report(intermediateResult)
<few more seconds of silent movement - experimenter prompts subject to explain> I'm trying to .. yeah .. I'm trying to go into another room and checkout that one.	Move(adjacentRoom)
This one seems empty,	See(robots:0)
I'll just take a look,	Search(??room)

Participant's Utterances	*Coded*
yeah, I can see a robo there	See(robot:1) Infer(identity(robot)) **
its six of them.	Report(intermediateResult)
this is perhaps <clears through> the same room I had come in before.	Infer(identity(currentRoom)
Um is it possible that I enter the same room?	Speculate(identity(currentRoom)/Query?
If I move around a... ok yeah sure <experimenter declines to answer>	
ok so six,	Report(intermediateResult)
yeah I'm yeah I guess its the same room in which I came in earlier.	Infer(identity(currentRoom))
I've counted these robos so...	Infer(identity(robots))
Ok I see another one there.	See(robots:1) Infer(identity(robot))
Different room .	Infer(identity(??room))
probably its one that I already counted before.	Infer(identity(robot)):speculate
so... Ok. I'm still trying to explore and find out..	Strategy(move through rooms – find robots)
I think I have an idea of the... of the layout of the rooms probably,	Infer(map):speculate
I'm just trying to make sure. <subject is rapidly navigating>	Strategy(do {move(adjacentRoom} until{infer(map)})
I'll move into the other room now.	Move(adjacentRoom)
<rapid silent navigation - experimenter prompts subject to describe actions and reasons> yeah. I'm now yeah I'm moving about the place,	Repeat [possibly multiple times]
I'm trying to.. just be sure as to how many robos are actually there.	SearchFor(robots) [interleaved with above]
So I'm just moving about the place <rapidly moving from room to room>	Move(adjacentRoom)
yeah there's three of them here,	See(robots:3)
a forth one there,	See(robots:1) Infer(identity(robot))
ok ... now I'll move into another room	Move(adjacentRoom)
Basically I'm going round and round about the same place	Move(room to room) Infer(map)
but, what I'm trying to do is to figure out how many robos are actually	Plan(identify and count robots)
there because they are also moving...	Hindrance(robot movement)
OK actually this looks like a different room...	Speculate(identity(currentRoom))
no its the same one.	Infer(identity(currentRoom))

Participant's Utterances	*Coded*
OK so, yup, I think I'm.. I know how many robos are there. There should be five of them in all.	Report(results)

Subject was successful; Time 3:11

<retrospective - experimentor reminds subject that subject initially counted six robots>

Yeah actually initially I counted six robos because I was not sure about the kind of topology of the whole place so I's I just tried to move about once I was sure ok that all of the rooms were interconnected, I went round them in a sort of cyclic fashion just counting the robos until I was sure there was just five of them there. <experimentor asks: so you were just trying to move as quickly as possible?> yeah thats r-- yes, in the later stage of the game I was trying to move as quickly as possible in order to out pace the robos and just count them.

Subject 8

Task 3

Participant's Utterances	*Coded*
I'm facing the wall	Begin-task
so I'm turning to the right,	Move(in currentRoom)
um I've got two exits it looks like,	See(doors:2)
and I'm standing right next to a table.	Label(currentPosition) See(distractor)
I'm gonna go through aahh, guess I'll call this the north exit.	Plan(Move(AdjacentRoom)) Label(door)
I see two robots in this room.	See(robots:2):Loc(current/adjacentRoom)
I'm entering the room,	Move into(currentRoom)
looking to the left,	Search(currentRoom)
nothing in the corner,	See(nothing)
looking to the right,	Search(currentRoom)
another exit.	See(door:1)
I'll go.. what I'm going to call east.	Move(adjacentRoom) Label(door)
I see a robot in the corner,	See(robot:1)
uggh, (I'm) stuck on the wall,	Hindrance(subject-navigation)
robot in the corner, robot in the corner,	Focus(identity(robot))
one going through the wall	See(robot:1)
as I turn left to right.	Search(currentRoom)
table in the middle again.	See(distractor)

Participant's Utterances	*Coded*
um there is no robot through this door,	See(robot:0) Fail(expectation(See(robot)))
oh there's .. that robot kinda got around behind me there, he's in in the corner.	See(robot:1) Infer(identity(robot))
So this is the robot I counted already,	Infer(identity(robot))
that two in the first room, two in the second room,	Report(intermediateResults)
I'll count this guy that just entered the third room,	See(robot:1)
ah this guy we'll call number 5 I suppose.	Infer(identity(robot)) Label(robot)
Ah doing spin around here,	Search(currentRoom)
nothing else in this room.	See(newRobots:0)
I think thats the guy I counted already because,	Infer(identity(robot)
ah, well he uh, couldn't move that fast.	Rationale:speed+time
So I'm going through this doorway again,	Move(adjacentRoom)
and I believe the total is 5,	Report(intermediateResults)
'cause I've gone once around.	Rationale:infer(map)
Maybe I'll go through once more just to check.	Plan(recheck)
<if I> Go through the doorway,	Move(adjacentRoom)
look to the walls,	Search(currentRoom)
oh there's one,	See(robot:1)
oops I got stuck on the robot,	Hindrance(robot)
One... two, three in the second room.	See(robots:3):Loc(room2)
Oops stuck on the table <subject chuckles>	Hindrance(table,navigation)
ok into the next room.	Move(adjacentRoom)
Ok, I'll call that number four	See(robot:1) Infer(identity(robot)
ugh um <subject perplexed>.	doubt
Maybe one did um outsmart me there.	ReEvaluate(identity(robots))
I'm going to go ahead and do um one more time through just to check.	Recheck
Perfectionist.	comment
So this is the room I started in I think.	Infer(identity(currentRoom)
let me back into a corner	Move(currentRoom)
so I can see the whole room.	Rationale(see/search(currentRoom)
Ok, we've got one there,	See(robot:1)
he's going, he's trying to get through the doorway.	Ascribe(intention, robot)
One robot.	Report(intermediateResult)
Second room.	Move(adjacentRoom)
two.	See(robots:1) Infer(identity(robot) Report(intermediateResult)
Third room.	Move(adjacentRoom)

Participant's Utterances	*Coded*
three, four...	See(robots:2) Infer(identity(robots)) Report(intermediateResult)
I'm going to call it four robots. We'll say thats done.	Report(result)

<end of task> Time: 1:51 ; subject not sucessful

When told there were actually 5, subjects wistfully said "If I could shoot 'em, then I'd know, ok that one's dead."

Retrospective: Well I guess I though, when I went through the first time, I thought perhaps that I had, oh since I spent so much time in each room, checking each room out, I didn't know the floorplan yet. Since I didn't have the map in my head yet, I didn't know how many maps I had to go through. Um tha I got five seems kinda random. Once I got the layout, then I realized that I had uh, basically a square to run around. I realized I could go from, uh, through all the exits and just make a clean sweep. So if I stopped in each doorway, looked around the room, jumped to the next doorway, looked around the room, and if I did that quick enough, I should be able to go faster than the robots and ideally, get uh an accurate count that way. I guess the most important thing was that this was just a circular floor plan. That I could just go through quickly and hopefully tell you .. incorrectly <chuckle>

Subject 10

Task 3

Participant's Utterances	*Coded*
ok,	Begin-task
<navigate> ok I seeeee...	Search(currentRoom)
a shhh in this room there appears to be one robot,	See(robots:1)
ok, ok I'm now turning to my right	Plan(Move(adjacentRoom))
because there does not appear to be any other robot in this room.	Rationale:find(robots)
So I <indecipherable> here.	Move(adjacentRoom)
This appears to be a second robot which has just gone out of the room.	See(robots:1) Infer(identity(robot))
I'm following it.	Follow(robot)
And I'm turning around...	Move/180??
doesn't appear to be here.	See(robots:0) Fail(expectation)
I'm going into the adjacent room.	Move(adjacentRoom)
This is a different room from the first one.	Infer(identity(currentRoom))

Participant's Utterances	*Coded*
I see, turning around.	Search(currentRoom)
I see what I think is the second robot.	See(robots:1) Infer(identity(robot))
I'm going back,	Move(adjacentRoom)
I think this is a third room.	Infer(identity(currentRoom))
There are two robots here.	See(robots:2)
Thats a total of four,	Infer(identity(robots)) Report(intermediateResult)
but one of these robots might have come from in here.	ReEvaluate(Infer(identity(robots)))
So.. oh no. So theres a total of four till now.	Report(intermediateResult)
And uh, lets see, so there are a total of four rooms here.	Infer(map)
There are two robots in here,	See(robots:2)
here is one robot in here,	Move(adjacentRoom) See(robots:1)
t ... and uh, there's two robots in here	Move(adjacentRoom) See(robots:1)
so I think there are a total of five robots in these four rooms. ok.. done	Report(Results)

<subject sucessful>

<retrospective>

oh Strategy was that since the robots were essentially moving, I wanted to make sure that once I moved from the first room to the second room, uh I mean I could you know like make out that after going into the second room that it was arranged in the form of a square. So I mean I just wanted to make sure that I didn't count the same robot twice you know because it could have been in like one room, say the first room and then when I went into the forth room the very same robot could have also moved into the forth room. So thats why I went back and forth just to make sure and uh, I think some of the robots were in the corner of the rooms, so I was sure that they could not have made it to the other rooms so I was able to figure out that there were you know two and two. Two robots in like two of the rooms and there was only one robot in one room and the forth room was kindof vacant. Sooo I was able to make out that there would be five.

Subject 11

Task 3

Participant's Utterances	*Coded*
I'm looking at two robots now in this room.	See(robots:2):Loc(currentRoom)

Participant's Utterances	*Coded*
I'm moving into another room.	Move(adjacentRoom)
I'm looking at two other robots.	See(robots:2) Infer(identity(robots))
They have not moved into another room	Strategy(infer(movement(robots)))
so I'm moving ahead.	Move(adjacentRoom)
I'm looking at another robot,	See(robots:1) Infer(identity(robot))
thats five till now.	Report(intermediateResults)
I'm moving into, oh I came back into the same room now	Move(adjacentRoom) Infer(identity(currentRoom))
- so there were two robots in this room that have not moved out of this room	See(robots:2) Infer(identity(robots))
and there's two other robots in this room	Move(adjacentRoom) See(robots:2) Infer(identity(robots))
and I'm moving into another room	Move(adjacentRoom)
and seeing one so -	See(robots:1)
I've seen totally five robots and thats about all there are,in these three rooms <note incorrect number of rooms>	Report(Results)

<while experimenter writes results - subject navigates rooms again as something to do> Ok so I guess I made a mistake heh-heh one here, one here, and two in that room, so I thought, ok this robot has moved, I didn't count that.

<retrospective>

ok, um so what I did was, I noticed that the robots don't move that fast. And I can move kindof faster, so and I just try to check out the number of rooms in the whole suite. And uh, when I found that the robots doesn't move out of that room - not much. So I just try to get into the other room and making a count of all the robots that are there. And uh - and pretty much thats what I did. When I back to the room I started from and I just made another quick check to see if the robots have not moved out, so thats my perfect total, so thats about five robots, two in each room. And one in the other room. Its three rooms <four rooms actually>. Thats what I've done. If I'd found that a robot was moving from one room to another. I would have probably followed that robot, or just left the robot and make sure it stays in my sight and go to another room and see of there are still robots there. Thats what I've d- I would have done.

<experimenter prompts with half audible question>

ok here the world consists only of three rooms, and a limited number of robots in every room that have restricted movement and do not move out of the room much. So here my best idea would be to move

through all the rooms really fast and uh make a count and make sure that the robots do not leave the room at the same time I'm leaving it so I can make sure that there is only a - the number of robots that I counted was the exact number of robots in that room. so thats what I did. But if the number of rooms in this suite was much larger and uh - in that case I would have just moved slowly through the rooms making sure that the robots don't move along with me and they are restricted to that room - and if a robot does move through rooms I'd I'd probably follow that robot and go along with that robot. And if it is going through all the other rooms then probably I'll follow it and - and then make a count there. And at the same time I'll make sure that there is no other robot that is following me or following this robot.

<experimentor asks "you said there were three rooms? it doesn't really matter because you finished the task">

<subject decides to check>

can I check again?

one two <navigation> oh there are four rooms. I counted this, the darker rooms as one I never realized because I was thinking about, counting the robots not just looking at what rooms are there.

Subject 12

Task 3

Participant's Utterances	***Coded***
Ok	Begin-task
-so I think I am in a room right now	See(currentRoom)
and theres a table in front of me	See(distractor)
and a robot comes in front of me	See(robots:1)
there are a couple of robots.	See(robots:2) Infer(concurrently seen objects not same)
And I just go to the one corner of the room	Move(in currentRoom)
and take a whole, complete view of the room.	Search(currentRoom)
And now there are two robots moving around here	See(robots:2):loc(currentRoom):time(now)
and then I can go to the other room.	Plan(move(adjacentRoom)
Just to my left and- yes,	Label(adjacentRoom)
one of the-. Like I'm, I think I'm hitting on the wall.	Difficulty-navigating
Ah ok.	Resolve(difficulty)
here,	Move(adjacentRoom)
another two robots in the room so	See(robots:2):loc(currentRoom) Infer(identity(robots))
and, they are moving around pretty fast so-.	Evaluate(speed(robots))
Yeah here I have - two of them and	See(robots:2):loc(adjacentRoom/firstRoom)
- this is the room I came from.	Infer(identity(adjacentRoom))
Ah yeah, I'm going into another room.	Move(adjacentRoom)

Participant's Utterances	*Coded*
There's a table and one more robot here.	See(distractor) See(robots:1):loc(currentRoom) Infer(identity(robot))
Yeaaaaaah. <navigation - experimenter prompts subject> yeah, I- I went into another room,	Move(adjacent(room))
so I think this is the third room I am in.	Infer(identity(currentRoom)) **
-And, yeah, this is like yuh, this room is empty,	See(robots:0) See(distractors:0)
and I just backup and go to one of the corners	Move(in, currentRoom) Search(currentRoom)
to make sure I don't miss out any one of them.	Rationale:Find-all-robots
And here is one robot that enters this room.	See(robots:1)loc(currentRoom):time(now)
So I think I am kinda losing count of the robots.	ReEvaluate(IntermediateResults)
ok, <rapid navigation>	Move(adjacentRoom)
so I had one here	See(robots:1):loc(currentRoom)
<rapid navigation>	Move(adjacentRoom)
one here.	See(robots:1):loc(currentRoom)
one here.	See(robots:1):loc(currentRoom)
Here?<navigation>	Move(adjacentRoom)
yeah? <experimenter prompts subject>	
yeah right so I just, go to the room that I came from here.	Move(previousRoom)
Like, there are two of them here.	See(robots:2):loc(currentRoom)
One, two and	Report(intermediateResults)
-- <navigation>	Move(adjacentRoom)
none of them here.	See(robots:0):loc(currentRoom)
<navigation>	Move(adjacentRoom)
so two here,	See(robots:2):loc(currentRoom)
and go to the third room, the room with the table	Move(thirdRoom) Label(thirdRoom)
and -. Think there is one here.	See(robots:1):loc(??)
So I suppose there are a total of three robots in the room? The total.	Report(intermediateResults)
<several seconds of navigation>	Move(rooms)
I go-come back to the room with the table	Move(room)
and-. There is one here.	See(robots:1)loc(currentRoom)
And this is the -	??
we go to another room	Move(adjacentRoom)
so there's one more here and-.	See(robots:1):loc(currentRoom)
Two of them in the room with the table	See(robots:2):loc(room-with-table)
so I suppose there are total three robots.	Report(results)

<retrospective>

<subject considered the two rooms with the table as one room. >
<rooms were themselves PIOs>

<strategies?>

Yeah first is, you know I just - ah - go to one of the doors and I can take a look at two rooms at the same time. So I just make sure that I -uh - I count the number of robots and - shee - see like if there are any robots trying to move into another room. And if there is somebody trying to do that, so I straightaway try to go that, to the other room and count the number of robots there. So this was the strategy and - yeah and I think that ok there were, things - suppose three rooms, but I considered two of them to be the same one. <experimentor notes it was actually four rooms> Four rooms? ok because I considered three rooms there. So I think yeah. I mistook one room for, I - confused between two the rooms so the same room. So that was the strategy.

Subject 29

Task 3

Participant's Utterances	***Coded***
I'm turning to the left.	Move(in, CurrentRoom)
There's a robot to be seen. The whole of the room seems to be empty.	See(robots:1):loc(currentRoom)
I find a door in front of me.	See(doors:1)
There's a robot to be seen there also.	See(robots:1):loc(adjacentRoom)
So I try going to the, to that door,	Plan(Move(adjacentRoom))
but I think the arrow keys are not working. <subject is running into the table.> I cannot get, get to that door.	Difficulty-navigating
I see another door,	See(doors:1) Infer(identity(door))
I- I'm entering that door.	Begin(Move(adjacentRoom))
I have left the robot, the first robot behind me.	Mark-location(robot) (finst??)
I enter another room.	Finish(Move(adjacentRoom))
There's nothing to be seen here. Yeah there's nothing to be seen.	See(robots:0):loc(currentRoom)
On the left there is another door.	See(doors:1) Infer(identity(door))
	[Move (AdjacentRoom)]
There are like three robots to be seen,	See(robots:3) Infer(Concurrently seen-> dfferent)
So the total number of count goes to four.	Report(IntermediateResults)

Participant's Utterances	*Coded*
Yeah there is nothing else but uh, three robots.	See(robots:3)
One I left behind,	Infer(loc(robot) ~> identity(robot))
that makes four.	Report(IntermediateResults)
There's a door on right.	See(door:1)
I enter that door.	Move)adjacentRoom)
I think I've come come down to the same room from where I left.	Infer(identity(currentRoom))
No the floor is different so thats a different room now.	Infer(identity(currentRoom)):rationale (perceptual-difference)
The count of robot goes to five.	See(robots:1) Infer(identity(robot)) Report(intermediateResult)
Now I am in another room.	Move(adjacentRoom) Infer(identity(currentRoom))
No thats the same room which I left,	ReEvaluate(identity(currentRoom)) Infer(identity(currentRoom))
so the number of robots is five only.	Report(intermediateResult) rationale(identity(currentRoom))
There's a table also,	See(distractor)
I'm trying to enter a door that is in front of me.	Plan(move(adjacentRoom))
I'm identifying the difference between the rooms by the floorings that is different.	Strategy(identify(room)):Perceptually Distinguishable floor
This room is empty	See(robots:0):loc(currentRoom)
there's a door in front of me,	See(doors:1)
I enter that door.	Move(adjacentRoom)
This is a separate room because the flooring is different.	Infer(identity(room)):rationale(perceptual characteristic: floor)
There was a robot there in the room	See(robots:1):loc(currentRoom):time(prev)
I don't see it now	See(robots:0):time(now)
. <silent navigation>	
Yeah there's the robot.	See(robots:1):time(now)
This is the sixth robot now.	Infer(identity(robot)) Report(intermediateResults)
is one robot.	See(robots:1)
<silent navigation>. One room. <silent navigation> Three robots.	Move(adjacentRoom) See(robots:3)
There's a door in front of me,	See(doors:1)
I enter that door. <silent navigation> there <silent navigation> Second room	Move(adjacentRoom) Infer(identityRoom)
. no robot.	See(robots:0)

Participant's Utterances	*Coded*
. ok. <silent navigation>. Third room,	Move(adjacentRoom) Infer(identity(currentRoom))
<silent navigation> one robot	See(robots:1) Infer(identity(robot)
that makes four.	Report(intermediateResults)
<silent navigation> And the forth room,	Move(adjacentRoom) Infer(identity(currentRoom))
that has one robot,	See(robots:1):loc(currentRoom)
that makes five.	Infer(identity(robot)) Report(intermediateResults)
Yeah. there are four rooms and in all five robots.	Report(results)

<retrospective>

ah there were different rooms and the flooring and walls of the rooms were different. I counted the robots in each individual room. I suppose that they were not moving out of the room so I found total four rooms and uh, I counted the robots individually in each room and summed that up, one room was totally empty, there were three robots in one room one robot in one room. another robot in one room that makes five.

<experimentor reminds subject that subject initially counted six robots>

no that I was not sure because I uh, at a later stage I realized that all the rooms were having different floorings. So I recounted it, keeping that thing in mind that that this is the way in which I'd be distinguishing the rooms. Initially I didn't take note of the floorings.

<so when you initially went around, why did you count six?>

the the thing that went wrong I suppose is that that the first robot that I counted, I didn't no- note it down the flooring of that room. So I counted it again. The- once I realized that the floorings are different so I rea- started recounting the robots on different floors. Not the rooms exactly.

<so you used the fact that none of the robots happened to change rooms?>

Yeah, I -I assumed that the robots are not changing the rooms. Because I was uh, maybe because I was moving a bit fast and the robots were not moving that fast. So in the last round of mine when I gave you the final count. I moved to the rooms in one go, and I found the number of robots. I assumed that in that small uh, gap of time, no robot were changing rooms.

Subject 37

Task 3

Participant's Utterances	***Coded***
I got two robots in this room	See(robots:2):loc(currentRoom) Infer(concurrently viewed robots -> different)
. ….. Let me check out.	Search
Two plus one. Aha. One in this room.	See(robots:1):loc(??)
Okey……. Yeah. Yeah. I moving to another room.	Move(adjacentRoom)
Ah. Here, I can see one more robot.	See(robots:1)
So this is the third one I am seeing.	Infer(identity(robot), different(previous-robs))
Hmm, okey. There are two robots.	See(robots:2) ReEvaluate(intermediateResults)
Ahh this room is not the same as the previous one, I suppose.	ReEvlaluate(identity(currentRoom)) Infer(identity(currentRoom))
Okey. Let me check out.	Move(adjacentRoom)
Mmmm, this room has no robots.	See(robots:0):loc(currentRoom)
Maybe, these robots must have moved from this room to that one. That might be a possibility.	ReEvaluate(expectations) Infer(robot movement))
Let me see. Okey, there are two robots.	See(robots:2)
Let me check on the other one	Move(??Room)
…….mmm, in all there are three rooms.	Infer(Map)**
One, one robot is in here.	See(robots:1):loc(currentRoom)
Two in here.	[move] See(robots:2):loc(currentRoom)
Okey, three robots.	Report(IntermediateResults)
Oh man. Am I getting confused?	doubt
One with… one in the room with the table.	See(robots:1) Label(room) perceptual-props
Ahh ..one, two, three….	See(robots:2) Report(intermediateResults)
And the room with white floor….	[move]
. and one in the room with table.	[move] Infer(identity(currentRoom)):rationale – percptual props ** Label(currentRoom)
Yeah. There is a room without table, right?	Speculate(map)

Participant's Utterances	*Coded*
……. there's one room without table, one with white floor,……	Describe(map) Movethrough(map)
okey, one, two, three,….three, four… <subject counts robots while moving rapidly through all rooms> <experimenter prompts subject>	See(robots) Infer(robots seen in rapid succession ~> different) Report(intermediate(results)
yeah.. and I'm just trying to find them.	Plan(searchfor(robots))
I am trying to see them simultaneously,	Strategy(see concurrently)
so that I'd be sure how many robots I've seen.	Rationale:increse confidance
Ahh..two at a time.	See(robots:2):time(now)
Once, I saw three at a time.	See(robots:3):time(prev)
Eh, this is the third one.	See(robots:1) Infer(identity(robot)) different than prev)
In some other room.	Move(adjacentRoom)
Ahh fourth one.	See(robots:1) Infer(identity(robot), different than prev)
I'm very sure there are greater than or equal to four.	Report(intermediateResult)
Let me check out.	Plan(recheck)
One must have moved in another room.	Infer(movement, robot)
Two… First…..one……hm…… <subject counts robots while moving rapidly through rooms> <experimenter prompts subject>	
yeah yeah…. I'm just trying to see them all at one time	Plan/strategy(see(concurrently – robots))
so that I'm pretty sure about how many of them are there.	Rationale:increase confidance in results.
Well, I'm checking out in the rooms,	Move(through, map)
at the same time they are moving into other rooms,	Describe(movement,robots)
trying to confuse me.	Ascribe(intention, robots)
Let's see. I'm pretty sure that they are greater than or equal to four	Report(intermediateResult)
'coz I've seen three of them at a time, and the fourth one in some other room. It's not possible for any three of them to move into that room in that short span of time so I'm pretty sure there are four.	Rationale:Strategies here!! See concurrently location of robots and speed of robot movement vs subject movement temporal data too
One, two.. I'm just trying to search ….	Plan(search)
Just trying to make sure whether they are not more than four…..	Move(through, map) See(robots:)
Yeah! They are four.	Report (IntermediateResults)
……,subject navigates> *[experimenter prompts]*	Subject navigating too much to talk at same time

Participant's Utterances	***Coded***
okey sure sure..*[experimenter says something]* yeah sure.	Subject navigating too much to talk at same time
Two two twoooo,	See(robots)
let me get into a corner and have a look at them.	Plan(see rooms)
I'll do nothing. Let them move about.	Strategy/Plan(passive watching)
One… One.	See(robots:1)
There were two in that room.	See(robots:2):loc(adjacentRoom)
Okey. Three at a time. …. I saw three at a time.	See(robots:3)
I'm not being able to see more than three.	Fail(plan)
Ohhhh let me rush.	Plan/Strategy(move faster than robots)
Yeah! Fourth one is in here. I'm sure….	See(robots:1) Infer(different (robot, recently seen bots)
Okey. Weeee….Yeah? mmmmmm,	Subject navigating too much to talk at same time
nobody movin' in here…..	See(robots:0)
okey. I'm sure. I'm sure (sigh) four robots are there.	Report(results)

[experimenter says there were actually five] ohh…. Did I miss anyone of them? Yeah (chuckles) *[experimenter says something]* Okey. Was there any tangible difference between those ….. or the structure was similar? *[experimenter says they all appeared to be the same]* okey.

[strategy to count the robots?]

ah actually, I wanted to see all of them at a time, at the same time. But, there were three others in room. So, when I was in one room, robot can move into some other rooms, to the other room, right? So I was just trying to locate them. I saw three of them at ah one time, one place. So I was pretty sure there were three. Then I move. I tried to move quickly so that I could follow them before they get into some other room or ah change their positions. That's what I'd like to do. And I found that, I, ah, at the most I found four.

[experimenter talks in the background] yeah.

Subject 038

Task 3

Participant's Utterances	***Coded***
ok I'm just looking at the walls,	Begin task
so I'm turning around to look around.	Search(currentRoom)
I see a robot through the - door	See(doors:1) See(robots:1):loc(adjacentRoom)
and I sss - turn left	Search(currentRoom)
so I can see the robot that is moving in front of me,	See(robots:1):loc(currentRoom)

Participant's Utterances	***Coded***
so thats one.	Report(intermediateResults)
uh I'm still looking around to see if there is any more robots in this room, walking around to look under the table.	Search(currentRoom)
uh I go through, the room on the left.	Move(adjacentRoom)
I'm looking left,	Search(currentRoom)
I don't see any robots.	See(robots:0)
looking right,	search
I see that the robot's gone into the next room.	See(robots:?):loc(adjacentRoom) Infer(same(prev-rob, seen-rob))
I see two robots right in front of me.	See(robots:2)
Looking around	Search
I see another one to the right.	See(robots:1) infer(different(seen-bot, prev-bots))
Which is the one that has moved in from the room I was initially in.	Infer(identity(seen-bot))
I'm still walking around making sure I haven't missed any.	Search
<sigh> Yup there's three robots - in the three rooms.	Report(intermediateResults
uh Do I still walk around? <subject asks experimenter>. Experimenter repeats written instructions: "when you believe you know how many robots there are, stop and tell <the experimenter>/me"	Clarify (experiment directions)
Yeah, yeah, I know how many there are: three.	Report(results)

<experimentor asks for retrospective>

Exp: How many rooms did you say there were?

Three.

Exp: <notes to subject there are four rooms>

<subject navigating,> one two three, yeah there are four rooms

Experimentor prompts for retrospective on strategies used:

first, let me see. First, look for the nearest door, and when I saw a robot, I memorized where it was and which way it was moving. And then I looked around to see what the total number of rooms was and I sort of traversed all of the rooms. And uh once I'd finished the traverse and I'd counted the number of robots I then went around one more time just to make sure one robot hadn't moved into another room

and I hadn't counted that twice. Or if maybe I'd missed a robot, which was moving into another room behind me. That was basically it.

Subject 44

Task

Participant's Utterances	***Coded***
I am just looking into the room.	Begin-task
Okey. *[experimenter prompts subject]*	
Yeah. I can, I mean,	Subject has trouble vocalizing while doing task
I can see where exactly all the things are.	See(objects):loc(currentRoom)
Okey. There's just one robot in this room.	See(robots:1):loc(currentRoom)
Okey… and now I'm going to the other room.	Move(adjacentRoom)
One robot okey, and two.	See(robots:1) Report(intermediateResults)
Okey. *[experimenter prompts subject]*	Subject has trouble vocalizing while doing task
I'm just looking from where I came.	Search(prevRoom)
It's the same place.	Infer(identity(room))
So, about two robots now.	Report(intermediateResults)
(mumbles) two. *[experimenter prompts subject]* yeah.	Subject has trouble vocalizing while doing task
Three.	Report(intermediateResults)
…… that's two. Okey total three.	
[experimenter prompts subject]	
I'm going to the other room	Move(adjacentRoom)
to make sure.	Rationale(recheck)
Alright…….	Subject has trouble vocalizing while doing task
Four, five	See(robots:2) Infer(identity(robots))
……..just making sure that I explored this room also	Move(room) identify(room)
. ..five	Report(intermediateResults)
…nah this is the room from where I started so	Infer(identity(currentRoom))
…… Okey. Okey. *[experimenter prompts subject]*	Subject has trouble vocalizing while doing task
just to make sure that I'm not, I mean, repeating the robots.	Recheck
One, two, three…….. (sigh)… okey…. there are like five robots.	Move(all rooms) see(robots) Report(intermediateResults)
Okey. *[experimenter reminds subject to signal completion by stopping- or vocalize]*	

Participant's Utterances	***Coded***
Okey. ….. yeah. I mean, I think I found out the total number of robots.	Subject has trouble vocalizing while doing task
…..*[experimenter prompts subject]*	
Just double checking.	
[experimenter prompts subject again]	
Again going into the room……..	
Okey. There are five robots.	Report(results)

[experimenter says there are indeed five robots]

[experimenter asks for strategies]

Actually, I just started with one room. Then, okey, this is a robot. And again, going into the other room, counting the robots and quickly coming back to make sure that okey there is a robot because the chances that he'll move into the other room are less if I come quickly. And that's what I did, for other rooms also. And an…and added. Okey there are two rooms in which the table is there, so these are my base rooms sort of thing. And depending upon that, I was like moving and counting the robots.

[experimenter makes further questions/clarification] yeah, quickly going to the room and glance how many robots and then come back to the base place see okey . And if there is robot, I'm sure he's not a robot in my base place, then he might have moved into the room. So I just make sure, going to the other side of the room, okey, is it there? That's what I followed.

[experimenter asks how subject noticed when robots changed rooms] ah..am because when I come back again, that's when I double check the things. It's like, when I come back, there were three robots here. And.. quickly, I could find that there were two extra robots out there. And so they are going from the same room here to the other room. There are … so three robots were here, but the chances of the one go to that room and there were two robots in that room. So there were like total of five robots, that's what I found.

Subject 48

Task 3

Participant's Utterances	***Coded***
OK	Begin-task
now I'm just, checking out the room to see, how big it is, where are the openings.	Search(currentRoom)
I can see a table	See(distractor)
and I can see a robot.	See(robots:1)
Which is moving	Robot action

Participant's Utterances	*Coded*
and I'm trying to, <sigh> see what the robot is trying to do.	Strategy(understand robot action)
Its hitting the walls, and its, responding to that.	Understand robot action
and I'm leaving the room.	Move(adjacentRoom)
There are, ... hmmm .... ok ... I'll give the count later.	
<silent navigation> <experimenter prompts subject>	
yeah, um I'm actually, trying to move fast into the rooms, before the robots can actually move out of the rooms so that uh, I can get a, an, get an accurate count of how many robots are there.	Strategy(move faster than robots)
<silent navigation> oooookey. oneeeeee, twoooo. Three. yeah, I'm still, four okeeeeeeeeeeey,	Subject has hard time vocalizing while navigating see(robots) report(intermediate results)
yeah I'm- I was just moving fast in and out of the rooms before the robots can actually move out of the rooms	Strategy(move faster than robots) Strategy(move in less time than typical robot move(adjacentRoom) action))
so that I get a- I get the correct count of robots.	Rationale:succeed(task)
I can see that there are four rooms. Each opening into two others, and there are two tables and, in in ah diagonally opposite rooms.	Infer(map)
And, in total, there are, about, <silent navigation> five robots in four rooms, which are hitting the walls and uh, uh responding to that and changing their directions, because of which they move in from one room into the other.	Report(results)

<retrospective>

yeah I was trying to move, uh, in and out of the rooms quickly enough, before the robots can actually move out of one room so that when I keep a count of one room, I'm sure that the count is unchainged by the time I get back into the room again. So that, ah you know, if I move slowly there could be, some robot in the other room, which hits the walls and gets into this room, of which, maybe if I counted one, next time I come in there are two robots, so again I'm confused so I move fast enough so that, by the time I cover all the rooms. The robots, that are, that, those are there in each of the rooms, maintain their

count.

<so did you assume that the robot that was in a room the first time you were in the room was the same as the one that was there next time?>

not necessarily, but ah as long as the count is proper, could be that the robot moved out of the room and uh, another robot came into the room, and the second room had two and the first room had one, even if one goes in and the other comes out, still the count for those two rooms is three. and you know, I cumulatively keep accumulating the count, for one in the other, two in the other and move fast enough so that I can get th, final count by the time I reach th forth room- I mean the first room! after um going through all the rooms.

Subject 52

Task 3

Participant's Utterances	***Coded***
OK, I have to basically count the number of robos robots that I can see.	Begin Task
... Ok this is one I can see.	See(robots:1)
<silent navigation> uh oh <silent navigation>	
. yes two I have spotted.	See(robots:1) Infer(different(seen-rob, prev-rob))
Two three,	See(robots:?)
I know its three.	Report(intermediateResults) imply(reasoning)
<silent navigation> as of now I've spotted three. <silent navigation>	Report (intermediateResults) [move(adjacentRoom)]
now its probably four.	See(robots:1) Infer(different(seen-rob,prev-robs)
No, no maybe its not.	ReEvaluate(inference)
Maybe, the other one has moved into that room.	Speculate(movement(robot))
<silent navigation> ..... <experimenter prompts subject> yeah I was just trying to look at the rooms. I mean the floors and I wanted to see if all the rooms are interconnected.	Move(map) Infer(map) Infer(identity(rooms))
And if they are the same robos moving.	Strategy(understand movement – robots)
Ok I can make out, one-two, two are definitely there.	See(robots) Infer(different robots)
Three I have spotted.	See(robots) Infer(different robots)
<silent navigation> three. ... yeeees.	Subject has a hard time vocalizing while navigating
OK so I ca- so there are four rooms in all.	Infer(map)

Participant's Utterances	*Coded*
<silent navigation> ..... its four rooms and four robos.	Move(all rooms) See(robots) Infer(robots different)
<chuckle> let me just confirm it once again	recheck
. ....<experimenter prompts> ah well, first I checked out how many rooms there are and I can see four interconnected, rooms. then... each room has got nearly two doors.	Infer(map) report(map)
And the robos are k-	False start
no, now it looks as if, there are more than four rooms.	ReEvaluate(Map) *
<silent navigation> hmmm. I'm counting rooms using the, pattern of the floors.	Move(through map) Identify(rooms):perceptual-props(floor)
.. Three in this. three, four. <silent navigation>..... [whispered] three. <experimenter prompts> ...	Subject has a hard time vocalizing while moving through rooms counting
yes I think its four robo- robots in all. <silent navigation>. yeah I think I've finished, I think there are four in all.	Report-results

.

<retrospective>

hmm Iiii I tried to check out the rooms, how the rooms are. And uh depending upon the flooring because all the rooms were interconnected. and uh they had a different flooring, so I was just trying to uh move in from one room to another, through the doors. And I was counting how many robots, but at the same time the robots were also moving so probably, and they all looked the same. Sooo maybe I must have missed one of them. I think I missed the one, I thought as much there was one fifth one which was there in that one dark corner. But I thought probably some other robot- the three were there in one room, and the forth one might have moved in, out there so I didn't count that. I thought as much that there might be five in all.

<how many rooms did you think there were?>

four, but now there might be one more.

<experimentor confirms four rooms is right>

four rooms and so I thought ok probably you know one robot for each room so it might be four in all. Thats why I ruled out the possibility of the fifth robot. But I could see that one one robot in that dark area near the wall. I could see it.

<so the strategy was just to move faster than the robots?>

ahhhh yeah and at the same time, I was trying to guess, I mean you have on the, in think each room had two doors, two entrances, exits whatever you say, so and I knew the rooms are interconnected so of course along with the floors I had to think about it that you know if the robot is in the third room it might enter the second room. If I'm moving this way he came come like this also. Its that way.

<so did you have a strategy for controlling for that?>

ah at the same time, I mean if I'm moving this way and I see a robot going like this, I mean if, if I'm moving like, uh I mean of course the direction in which I was moving, the direction in which th robots were moving. I did consider that also, and I was trying to move as fast as I can and at the same time understand and realize how the rooms are interconnected, how the floor was so I have an idea of, the, map of the suite of the rooms, how they are, and then try to go about it.

Subject 53

Task 3

Participant's Utterances	***Coded***
I move forward, move backward.	Search(currentRoom)
I see one robo moving.	See(robots:1)
Moving in, all direct... its coming towards the screen. Um yeah it moves in all directions.	Strategy(Understand robot movement)
There's a table,	See(distractor)
Kinda of, lets see them, around the room, ahhh <silent navigation>...	Search(currentRoom)
oh so this room has just one robo which is moving and there's a table.	See(robots:1):loc(currentRoom) See(distractor)
<silent navigation>	Move(adjacentRoom)
this room has one, which is moving. 'k.	See(robots:1):loc(currentRoom) Report(robot activity)
	[move(adjacentRoom)]
Now this room has two	See(robots:2):loc(currentRoom)
and I don't know whether it is the same room which I had seen earlier.	Speculate(identity(currentRoom))
But then, it has two,	See(robots:2)
and there's a table also.	See(distractor)
annnnd oh..... I'm going back, the second room I went.	Move(prevRoom) Infer(identity(room))
and I'm going to the first room.	Move(prevRoom) Infer(identity(room))
ok so I went to three different rooms, now I realized that.	Infer(partial Map)

Participant's Utterances	*Coded*
ok and ...	Move(adjacentRoom)
now this is the forth room.	Infer(identity(currentRoom))
and it has one robo.	See(robots:1)
Which issssssss moving in all directions.	Understand(robot Movment)
ok. ...annnd. ... here I turned,	Move(in Room)
so ok, I, I lost count of it.	Doubt ReEValuate
<silent navigation> <experimenter prompts subject.> yeah, I- I kind of, am going back	Move through rooms
because I forgot, the number of robos in each room. So I'm kindof confirming again.	Rationale:recount
And .. one table in there.	See(distractor)
One robo in here.	See(robots:1):loc(currentRoom)
That makes it two.	Infer(different(seen-rob, prev-rob)) Report(intermediateResults)
<silent navigation>	Move (adjacentRoom)
hmmm there's one,	See(robots:1)
here are two here,	See(robots:2):loc(currentRoom) Infer(different(robots, prev-bots)
t four, five. So there are five object total up till now.	Report(intermediateResults)
... and uh	Move(adjacentRoom)
..... now I don't know whether - if I have visited this room.	Speculate(identity(currentRoom))
'cause this is, I guess this is the sixth one.	See(robots:1):loc(currentRoom) Infer(different(curr-bot, prev-bots)
Annnd I come back to the first room.	Move(adjacentRoom) Infer(identity(currentRoom))
Sooooo I guess there are six object in all.	Report(results)

<retrospective>

yeah, I went, I went from one room t- to the other. And I kindof to recognize the room, I guess I recognized them by the tiling fashion. How the tiles are placed. So I counted them. And then, in between I lost count of the uh number of objects, I had to go back, s then I, maybe in between I got confused and thats why I counted one robo extra. But then ummm yeah, thats the way I did it.

<how many rooms were there?>

I guess, I guess, four.

<robots changing rooms?>

no I couldn't decide, in one of the - while I was kind of moving around the rooms, I saw one of the robot at the entrance like, which goes to the other room, but I didn't see that robo going into the next room. I mean he came back from the door itself. So I guess that, I mean that robo is confined to that particular room? I kindof made a, I assumed that. Now this particular one, I saw it going up the the door and coming back I di- I didn't see him entering the, the other room. So I guess I kind of assumed that this robo should be confined to this room and doesn't, can go up to the door but cannot go back oh! [subject just sees a robot change rooms on the still running simulation] oh yeah oh I'm seeing this now, I'd not seen this earlier! Oh of course they are changing rooms. Oh so then, maybe that's why I got confused that they are six because then they were exchanging and I went back and maybe.

<but your assumption while you were in the experiment was that all the robot were confined to a room each?>

yeah it was just kindof, matter of timing that, when I was browsing around the room, that I didn't see any robots, I mean, going in other rooms, maybe thats why.

Subject 59

Task 3

Participant's Utterances	***Coded***
All right,	Begin-task
I'm looking around in this room,	Search(currentRoom)
I see, robot.	See(robots:1)
OK, so there's two, entrances coming out of this one.	See(doors:2)
There's one robot.	See(robots:1)
ok and he's going into, seems like he's staying in the same room ok.	Understand(robot-movement)
See if I can follow his pattern. I'm going to try and see if I can, see a distinct pattern with this robot to make sure that he doesn't want to go into any other room.	Strategy(Understand(robot-movement))
um first off. Now looks like heee's pretty much content with the room that he's in. ... um ok it looks like he's going to stay in this room.	Infer(robot-movement: not between rooms) **
So I'm going to move into this other room.	Move(adjacentRoom)
I'm going to look around, check the corner, look,	Search(currentRoom)
ok there's two robots in here.	See(robots:2):loc(currentRoom) Infer(concurrently seen bots different)
And those two robots have been moving around.	Report(robot movement)
I'm just trying to move, to the corner	Move(in currentRoom)
to get a better perspective.	Rationale:see(all currentRoom)
And to check on that other, the other room	Lookat(prevRoom)

Participant's Utterances	*Coded*
to see if that one robot is still there,	Rationale:see(prev-seen bot)
and he is.	See(robots:1)loc(adjacentRoom) Infer(same(seen-bot, prev-bot))
OK. I'm gonna go to the next room.	Move(adjacentRoom)
And there are no robots in this room.	See(robots:0):loc(currentRoom)
Looking around the whole room, checking all corners, to gain a good perspective on the room.	Search(currentRoom)
Going into a- the next room,	Move(adjacentRoom)
and I notice that there's two robots in this room.	See(robots:2):loc(currentRoom)
Annnd gonna go back over into here	Move(adjacentRoom) <first room>
to check if that one robot left here.	Rationale:See (prev-Robot)
Ok,	See(robots:1):loc(currentRoom) Infer(same(seen-bot, prev-bot))
I'm done, there's five robots.	ReportResult

<retrospective>

Basically, just seeing, making sure that they didn't go, to another room, and uh just going into a room, looking in the room and finding the number of robots.

<so->

So basically I was trying to find a pattern, seeing if that robot followed, a distinct pattern and not going, not merging into any other room so I wouldn't count that robot twice, or even three times if he appeared in three rooms when I was in there.

<so you decided that they weren't traveling between rooms?>

right.

Subject 62

Task 3

Participant's Utterances	*Coded*
So we are looking for, uh we counting, are going to count the number of robos.	Begin Task
There's one out here. OK, in this room.	See(robots:1):loc(currentRoom)
ahhh there two three,	See(robots:2) Infer(different seen-bots, prev-bots)
total till now was- are three, robos.	Report(intermediateResults)
. ok I move out of this room.	Move(adjacentRoom)
Forth one out here.	See(robots:1):loc(currentRoom) Infer(different seen-bot, prev-bots)
<silent navigation>...	Move(adjacentRoom)

Participant's Utterances	*Coded*
annnd a fifth one.	See(robots:1) Infer(different seen-bots, prev-bots)
<silent navigation>	Move(adjacentRoom)
there are none out here. ummm there's no- there is no one.	See(robots:0):loc(currentRoom)
<silent navigation>..<sharp indraw of breath> ok um I'm I'm uh actually looking f- if there are any other rooms. <silent navigation>.	Search(map) Move(rooms)
uh I think there are just four, rooms, uh so there are five rooms,	Infer(map)
and uh six robos throughout.	Infer(intermediateResults)
<deep breath> hmmm ok so, let'ss count it again, so.	Plan(recheck)
There's one out here.	See(robots:1):loc(currentRoom)
ummm ...	Move(adjacentRoom)
two in this room.	See(robots:2):loc(currentRoom)
Thats three.	Infer(different, seen-robs,prev-rob) Report(intermediateResults)
annnd	Move(adjacentRoom)
two out here..	See(robots:2):loc(currentRoom)
that's five	Infer(different, seen-bots, prev-bots) Report(intermediateResults)
.. annd this is,	Move(adjacentRoom)
there is no one..	See(robots:0)
I think there are five total robos.	Infer(no more bots) Report(results)

<retrospective>

um, I was actually looking at the rooms. And the tiles of the-the-the ceiling, and the objects which were inside so the table for example in one of them. um, that one. annd basically once I had, come back to the first room. I realized that its just four rooms. I I initially assumed that there might be quite a lot of rooms. But since there were just four of them, I knew that those robos were the number of robos that there are.

<how did you know that there were five? what strategy did you use to chose- you cant->

um I counted them, uh according to the rooms in which they were. I mean I assumed that, or, I mean I could see that the, the robos weren't actually crossing the rooms or anything. Soo, in the four rooms, one of them had one nd the other two, two of them had two each, and the forth room was empty. So, that's how I guessed it.

<so you basically relied on the fact that the didn't change rooms while you were looking at them?>

yes.

<ok and you assumed that they didn't change rooms?>

I assumed that they didn't.

Subject 67

Task 3

Participant's Utterances	***Coded***
I'm going to count the robots...	Begin-task
oh my... Some dizzying designs there are. <sigh>	Comment
.. <experimentor prompts subject>	Subject has trouble vocalizing while navigating
I'mmm I'm looking at the entire room, because, there might be some other robots, somewhere in the room	Search(currentRoom)
... uhhhh, are these rooms of different designs? So that when I see a design I see,	Speculate(perceputal-properties rooms)
Ok there's only one robot here.	See(robots:1):loc(currentRoom)
Can I go to that room?	Plan(more adjacentRoom)
Yeahoooooo ugghh...	Move(adjacentroom)
uhhh let me go through that corner. And to this corner,	Search(currentRoom)
nothing here.	See(robots:0)
uh...	Move(adjacentRoom)
oh that robot, bumped the walls.	See(robots:1) Notice(movement of robots)
Can it go through walls?	Speculate(movement of robots)
... no.	Infer(movement of robots)
There are three here,	See(robots:3):loc(currentRoom)
ah lets see.	Plan
Hey wait. <silent navigation>. Oh, hey wait, hey guys.	Talk-to robots
Why can't move.	Hinderance(Navagation)
oh..	Resolve(hinderance)
Can they transfer rooms?	Speculate(capabilities/movement robots)
no... they just remain in one room.	Resolve(speculation)
annnnnd <experimentor declines to answer> ohhhkey. well thats not fair <laughs.>	Query Experimentor
Ooook let me go to that old room.	Move(adjacentRoom/prev-room)
Lets see if, a new robot was added there.	Rationale:check number robots – compare with prev

Participant's Utterances	*Coded*
Oooh, is this the same room?	Doubt Speculate(identity(currentRoom)
oh this doesn't seem like to be the room I came from.	Speculate(identity(currentRoom)
Ah lets see. No.	
There's one lurking in the corner.	See(robots:1)
Can I go to that other room again? how do I go there?	Plan(move(previous room)
oh oops oops oops oops oops the door, the doooooooor, the door.	Attempt(moveto prevRoom)
Hey, can, come on let me get out of the corner,	Navigational Difficulties
no one here.	See(robots:0):loc(currentRoom)
oops. just-just went through the <indecipherable>	Move(adjacentRoom)
oh no. oh is there only one robot here now?	See(robots:1) ReEvaluate(number robots in room)
it seems they move.	Infer(movement Robots)
Pesky robots! pesky robots.	comment
Or am I in the same room.	Speculate(identity(currentRoom))
Of course I have been through this room,	Infr(identity(currentRoom)
now there are two here,	See(robots:2):loc(currentRoom)
oh there are something-some robot stuck outside.	See(robots:1):loc(doorway)
poor robot.	comment
one two three,	Infer(different, robots) Report(intermediate results)
And another one which is trying to get iiiiiiin.	See(robot) Ascribe(intention, robot)
Hey, will you want to get in?	Talk-to Robot
Oops I'm in anotherrrr dimension. this sounds so X-file-y to meeee. .du-jut oy,	Suprise and appearance of robots at very close range
that robot went in.	Infer(identity(robot)) describe (actions, robot)
heeey great robot,	Talk to robot
there's no one heeere.	See(robots:0):loc(currentRoom)
<indecipherable four syllables> are you iiin. Yes you're iiiiin.	Talk-to robots Note(loc, robots)
oops... Let me check you guys again later-	Mark(robots) finsts?? Strategy – check robots time(later) [move(adjacentRoom)]
ah this is the room I came from.	Infer(identity(currentRoom))
ooops where am I now, uh, what of those graphics? <experimentor responds that they show up when someone is right against a robot.>	Suprise – visual effects of being close to robots

Participant's Utterances	*Coded*
Oh I'm running right up, oohh <silent navigation> can you give me-oh, that pesky robot, how will I move out.	Subject Stuck on robot
<subject has become stuck on a robot at this point - task had to be aborted - getting stuck on a robot was quite rare - but possible when going against one from a particular angle.>	

<retrospective>

well going from room to room, because they're moving., I just have to check where they are. And to see if, w- know, its the same robot in the same room and they're moving a lot, and so when I go back to the same room they won't, robots are not their, their all in one room, and then there's one in the next so I'm not sure how many there are.

<and for counting them?>

let me see. I'd go bck from room to room and see if, at any given time I'm there, a robot is there. If a robot is there, its not part of the group. And then if I go back, and I see how many robots leave and how many arrive <giggle> annnnnnd factoring in, the leaving coming and going, see how much, how many there really are. annnnnnd if I see robots together, of course, that means, there are at least that number right? And I just see if somebody's left behind somewhere. And then I just add the one whose left behind to the one whose- to the ones who are together, and maybe make a count from there.

Subject 68

Task 3

Subject Utterance	*Coded*
ok,	Begin-task
so I'm looking around, searching for a robo.	Search(currentRoom)
Yeah I see one. .. its right here.	See(robots:1):loc(currentRoom)
So I better, go fast, so that it doesn't catch up with other robos and, I mix them up,	Strategy(move faster than robots – keep mental representations distinct by doing so) Move(adjacentRoom)
they all look similar.	Note (PIO robots)
There are three here, in this room.	See(robots:3):loc(currentRoom)
I'll just go fast,	Move(adjacentRoom) Strategy
there's one here.	See(robots:1)
There's one here.	See(robots:1)

Subject Utterance	*Coded*
.. I guess there are just five of them.	Infer(identity(robots)) Report(intermediateResults)
<silent navigation>	Move(adjacentRoom)
ok now he'sss vanished, this robo.	ReEvaluate(expectation) Infer(identity(currentRoom)) Recall robot:loc(currentRoom)
He's gone into the other room.	Hypothosize(robot location)
OK there are two here.	[Move(adjacentRoom)] See(robots:2)
Ok, there are three here.	[Move(adjacentRoom)] See(robots:3)
I'll just go fassst.	Strategy Move(adjacentRoom)
I don't expect to see any robo in this room.	Strategy/expectation Infer(identity(currentRoom)) Infer(actions , robots)
Ok I guess there are just five of them, of this kind, yeah.	Report(intermediateResults)
...<experimentor reminds subject that to signal a final answer - stop navigating.>	Move(rooms)
ok. yeah, I'm just checking up,	recheck
I actually want to see what they're doing, how then move,	Strategy(understand Robot movement)
can I?	Query experimentor
if they have a path of - that would help me judge better. like do they have the tendency of moving into other rooms faster or what.	Strategy(understand Robot movement)
<silent navigation>	Move(rooms_
two.	See(robots:2)
annnnd one is here.	[move(adjacentRoom)] See(robots:1):loc(currentRoom)
<silent navigation>	move(adjacentRoom)
<sigggggggh> two, two,	See(robots:2)
ok, there are five of them.	Report(results)

<retrospective.>

yeah, uh the thing is first, uh first of all I had to make an assessment of the, total area, of the whole place. OK so I know wh-where all the robos can be. Where all I can find them. Then I saw I can move much faster than them. They take some time to move around. Sooo I just moved fast enough, so that uh, before they coulduh actually uh shift from one room to the oth- to the other, I could just, go through

all the rooms, and count them, total. And I just rechecked for that. I just went back to the, the room that I had just visited, and I just saw that, there were none or som- something of that sort sometimes. And this helped me determine how many robos there were.

<you mentioned about wanting to see how they move>

How they moved, yeah. Because its possible that uh, they also have a behavior of just vanishing and appearing again somewhere else, so its possible that when I just move from one, room to the other, on of, them vanishes and comes here. So I just wanted to see, for some time iff one of them vanishes or something, staying in one room. <chuckle> yeah.

Task 4 Codes

Task 4 transcript codes begin here

Subject 4

Task 4

Participant's Utterances	***Coded***
He's turning left and	Report(focus-bot movement)
oooh .. since I need to turn left, I'm going to g-,	Move(adjacent-room) Navigation-difficulties
I'm just going to assume this guy is the one I'm following,	See(PIO robot) Infer(identity(robot))
and this is that, he moved from he room to another room	Report(focus-bot movement)
and now we are in some sort of a classroom.	See(perceptual-props(room)) Label(room)
<gasp> exiting ... he's turned right,	Report(focus-bot movement)
following him into a room with some sort of a machine.	Follow(focus-bot) See(distractor/perceptual-props(room))
I'm struggling to keep this fellow in sight	Strategy:keep focus robot in visual field at all times
because I know there are other robots and I don't want to confuse who which one I'm supposed to follow.	See(PIO distractors) Strategy:part II
I cross paths with another robooot, this, he has a red spot so I know that I'm not supposed to following him.	See(PIO distractor)
Stuck? <subject got stuck on the robot at this point so we restarted the task>	Abort task due to technical difficulties

Participant tries again

Participant's Utterances	***Coded***
Ok	Begin-task
I'm following this robot,	Follow(focus-bot)
he turned .. left,	Report(focus-bot movement)
oh he does, he has a red spot on his head.	Perceptual-props(focus-bot)
He went into another room.	Report(focus-bot movement)
his looks like a class room,	See(perceptual-props(room)) Label(room)
T and he's headed out the door. Into the corridor,	Report(focus-bot movement)
and I lost him, I lost him.	Lose(focus-bot)
Oh Ok maybe I'll try this room.	Search-for(focus-bot)
There are three robots I don;t know which one I'm supposed to be following,	See(PIO Robots:3)
so I'll just pick one randomly. <subject picks the wrong one> yup I this is the one I've picked.	Choose(robot) Infer(identity(robot)):strategy(guess)
So I'm going to go on following him ... or her.	Follow(robot)
OK - he's just randomly switching directions going in the . he's traveling in, along the x or the y axis, he doesn't seem to go diagonal. He's headed towards a shelf.	Report(robot movement)
<experimenter stops the experiment as subject has clearly stayed with incorrect robot.>	

Subject 5

Task 4

<note for this task - whenever subject says ooops - it indicates that the subject ran into a wall for a second>

Participant's Utterances	***Coded***
Ok	Begin-task
so I'm following this robot,	Follow(focus-bot)
he's turned to left	Report(focus-bot movement)
and I am going <chuckle> right... behind him.	Follow(focus-bot)
He's moving to another room, and just going to another room again.	Report(focus-bot movement)
I'm moving with him,	Follow(focus-bot)
he's come to this .. near the table and then going toward, I believe another next room.	Report(focus-bot movement) See(distractor/perceptual-props(room))
And I'm following him	Follow(focus-bot)
and ok he went to the right side. He's going straight and turned left ...	Report(focus-bot movement)

Participant's Utterances	***Coded***
with the .. ah the other robots ok.	See(PIO distractors)
he's moving left,	Report(focus-bot movement)
moving moving with him	Follow(focus-bot)
ah ooh <subject runs into an object>	Navigational-difficulty
ok I'm moving with him,	Follow(focus-bot)
he's going back to another room.	Report(focus-bot movement)
aaannnd <pause while navigating> there are alot of computers here ...	See(distractor/perceptual-props(room))
it seems a lab.	Label(room)
And he's going here. Ok he's going back, back up the room. <navigate silently for a few seconds> took a left, going to another room, out , to the right, going straight down the lane, ... going straight, took a left,	Report(focus-bot movement)
ooops<hit a wall> ,	Navigational-difficulty
ok, to a- a Pepsi	See(distractor/perceptual-props(room))
and now he's taking a right, near the table,	Report(focus-bot movement) See(distractor/perceptual-props(room))
to another room might be,	Anticipate(focus-bot movement)
yes. <navigates>	Correct anticipation
he's going straight, <follows silently for a couple of seconds> he's going straight, ok straight, he just took a right to the room.	Report(focus-bot movement)
I believe its the same lab.	Infer(identity(room))
<navigates> ok he's going, ok, <navigates and follows silently> he's going straight, straight, front of the room.	Report(focus-bot movement)
I believe he's going to... go to the next room.	Anticipate(focus-bot movement)
<navigates> yes he is.	Correct anticipation
Ok, <navigates silently till experimenter prompts him to vocalize> yeah he's moving	Report(focus-bot movement)
and I believe he's going to the next room most likely.	Anticipate(focus-bot movement)
Ok he's going to the lobby. And yes he took a left turn and going back, and he stopped.	Report(focus-bot movement) Label(room)
<experiment is done>	

<retrospective>

When I was going through this guy, I was very very , <indecipherable> concerned, I was not looking around here and there, I was mainly looking into that guy because I knew that I have to follow him not not the others, I don't care about others where they go. So that was all.

Subject 6

Task 4

Participant's Utterances	***Coded***
I'm trying, I'm following the robo.	Follow(focus-bot)
Its moving into a room,	Move(adjacent-room)
ahh I'll move behind that, as quickly as possible.	Strategy(follow focus robot closely)
So its just moving about,	Understand (focus-bot movement)
its going into another room now.	Report(focus-bot movement)
Yup, I can still follow it. I'm trying to be as close to the robo as possible so that I won't miss it. because, yeah I'm trying to keep track of it,	Follow(focus-bot) Strategy(object continually viewed is same object)
its going and it seems to be going round and round	Understand (focus-bot movement)
oh I see another one there but,	See(PIO distractor)
oops, I have to be sure that I follow the correct one which is the one right here, in front of me.	Self-instruction Infer(identity(focus-bot))
Oh, yeah thats the one there, I think I'm still behind the robo, I'm not quite sure	Speculate(identity(focus-bot))
but, there are four robos in the room,	See(PIO distractors)
moving into another room full of computers,	Move(adjacent-room) See(distractors/perceptual-props(room))
just following the robo, <silently navigates for a moment>	Follow(focus-bot)
yeah, its going - its going up through an aisle.	Report(focus-bot movement)
I'm just trying to keep as close to the robo as possible so I don't miss him.	Strategy(object continually viewed is same object)
And there was the situation in the room when I almost missed him.	Near-failure (strategy)
Ah its going to, its, its going into a corridor.	Report(focus-bot movement)
Following it.	Follow(focus-bot)
Yup its turned into a room now. Going,	Report(focus-bot movement)
yeh it looks like a ... its difficult to keep pace with the robo,	Difficulty Subject has trouble vocalizing while navigating.
its going in another room. ... Yeah its back in the corridor again.	Report(focus-bot movement) Infer(identity(room))
This looks like a different corridor ...	Infer(identity(room))
just following the robo,	Follow(focus-bot)
its moving into the same computer room again.	Report(focus-bot movement) Infer(identity(room))
and I can see there are more robos in this room	See(PIO distractors)
so I'll have to be really ... ah .. just follow this one really closely because I might lose it.	Potential trouble Strategy(object continually viewed is same object)

Participant's Utterances	*Coded*
... So I'm following the robo, I'm still behind it. and yeah, I'm at a distance from it, still closing it. ... just going behind it.	Follow(focus-bot):closely
Its going into a corner, its turning now, just moving moving into another room. Yup .	Report(focus-bot movement)
I'm still behind it. ok. ok. Still tracking it.	Follow(focus-bot)
Now there are two of them.	See(PIO distractor)
But the robo that I'm following, it leaves the room. Goes into the corridor. <subject successfully followed the robot.>	Report(focus-bot movement) Infer(identity(focus-bot))

<retrospective Experimenter notes that the subject really only had on period of reported doubt and asked subject to discuss that>

Yeah, right, ah, just when I started following the robo it entered a room full of robos. And I kindof had almost lost the robo because there were so many of them.

<experimenter asks why did you choose to follow the one you did?>

Ah amongst those um, because, I mean, I was kinda certain to a certain degree, I mean I was sure to a certain degree that this was the one I was following and I mean I could just, I could, <clears thought> kind of guess what move it would make next. So I kindof followed my intuition also.

<experimentor asks "so you were guessing what moving it was going to make?>

yeah, I mean ah, I w- after I almost missed it, I was trying to do it all the time so that if there was a situation again I could just follow it.

Subject 7

Task 4

Participant's Utterances	*Coded*
OK,	Begin-task
I see the robot,	See(focus-bot)
he's going into the room on the left hand side,	Report(focus-bot movement)
I see around .. lots of chairs in the this room.	See(distractors/perceptual-props(room))
The robot has navigated those chair, gone beyond, and enter into the room on the right,	Report(focus-bot movement)
I'm following the robot, to go,	Follow(focus-bot)
it looks like a classroom kind of an environment.	See(distractors/perceptual-props(room))

Participant's Utterances	*Coded*
I can actually walk over all the chairs and follow the robot.	See(distractors/perceptual-props(room)) Report(own movement capabilities)
The robot is going out of this room, classroom and is taking a right turn,	Report(focus-bot movement)
oh man am I still in this room <subject hit wall>	Navigational Hindrance
So I failed to follow the guy, ok And I lost him	Lose(focus-bot)
oh I see him there...	See(robot)
now I don't know which robot it is.	See(robots:??) Fail(identify(robots))
<pause> I don't know which robot it is.	Fail(identify(robots))
So I decide to, well what do I do?	Decision-point
aaahhhh Since this robot is not	Subject has choses a robot
- well is it moving out of the room?	Speculate(movement robot) Expectation(movement, focus-bot)
no its not.	Fail(Expectation(movement, focus-bot) seen-bot)
So...	Subject unhappy with all current choices of robot

<experimenter ends the experiment at this point>

Oh man I'm sss not good at this.

<tried it again just to see>

Participant's Utterances	*Coded*
Ok	Begin-task
so we come back to the second room, the classroom kind of environment,	Both-move(focus-bot, subject, room2) Infer(identity(room))
and I think I've lernt something .. that I shouldn't be losing track of the guy anymore.	Strategy(keep focus-bot in sight constantly.)
So out I go with him and Out I go.	Both-move(focus-bot, subject, adjacent-room)
I see some more robots on my left, that I, in fact I see two,	See(PIO distractors:2)
and he goes into this room	Report(focus-bot movement)
and I see three and I know which guy is mine.	See(focus-bot) See(PIO distractors:2) Infer(identity(focus-bot))
And I am following him very closely. and I am not going to lose sight of him this time.	Strategy(not lose sight of focus-bot) Strategy(continually viewed objects are same at different time steps)
Whoops, they were going to collide, but they didn't.	Report(interaction (focus-bot, PIO distractor))

Participant's Utterances	*Coded*
He's going into a room which has alot of computers,	Report(focus-bot movement) See(distractors/perceptual-props(room))
it looks like a computer lab.	Label(room)
and I still keep following my guy. OK	Follow(focus-bot)
ok...<pause> OK so he	
the robot is headed out of the room. and its going to .. my right.	Report(focus-bot movement)
So I'm going to the right, and following the robot,	Follow(focus-bot)
<pause while subject navigates up the hallway>	
Now I did not care to find, though I'd lost sight of the robot, I did not care to find out whether its another robot or not.	Lose-sight(focus-bot) See(robot)
I <chuckle> I'm presuming that its the same guy	infer(identity(focus-bot))
and I'm following it.	Follow(focus-bot)
Which might not be the way the experiment was intended to go, buttt,	comment
ok now we are in another room.	Both-move(room)
There seem to be a lot of SUN Sparc stations.	See(distractors/perceptual-props(room))
And ok the guy is going towards the end of the room	Anticipate(focus-bot movement)
and I see two more robots in the doorway.	See(PIO distractors:2)
They just past us.	Report(movement(PIO distractors))
oookkkk and ok ok ok ok ok ok ok	Follow(focus-bot)

<subject finished following the robots path>

Subject 8

Task 4

Participant's Utterances	*Coded*
allright,	Begin-task
Oh he turned,	Report(focus-bot movement)
I'm going to tail him. ...	Follow(focus-bot) [subject also loses sight of focus-bot here]
Ahh this should be my guy right in front of me still.	See(robot) Infer(identity(robot, focus-bot))
entered the second room,	Move(adjacent-room)
bunch of chairs in here.	See(distractors/perceptual-props(room))

Participant's Utterances	*Coded*
Ah trying to stay close behind him.	Strategy(keep focus-bot closer than other bots)
Heeee's in the next room.	Report(focus-bot movement)
I pass through,	Move(adjacent-room)
we've got a white board on the wall there.	See(distractors/perceptual-props(room))
Um, lets see if I can maneuver around these chairs.	Plan(move around distractors)
Yeah I've go him right in my line of sight so I don't loose him when I turn.	Strategy(objects continually viewed are same object)
Um he's turned down the hallway,	Report(focus-bot movement)
I'm following him into the hallway.	Follow(focus-bot) Infer(identity(room))
and ok My guy is the one on the left,	See(PIO distractor) Infer(identity(focus-bot)
I'm following him into the room	Follow(focus-bot)
with the little computer in to.	See(distractor/perceptual-props(room))
ooop. stuck on another robot,	Navigational-difficulty(PIO distractor)
still have him in my field of vision, so I should be ok. Assuming I didn't screw up but uh <chuckle>.	See(focus-bot) Strategy(objects continually viewed are same object)
Oh He's going behind the computer,	Report(focus-bot movement)
thats not good.	Doubt/concern
I think he's the only one back there though. I didn't see anyone else go the other way, so uh.	Strategy(single object in obscured area) Strategy(persistence of Objects)
This has got to be my guy still.	See(robot) Infer(identity(focus-bot))
Um so he's going to the room with lots of computers.	Report(focus-bot movement) See(distractors/perceptual-props(adjacent-room))
I'll follow him in there,	Follow(focus-bot)
try to keep him in my field of vision.	Strategy(Objects continuously viewed are same)
Um I'm taking just little tiny steps so I don't run into him either.	Describe(movement) Strategy(Don't get too close, so robot stays in field of view)
Ah he's going around the tables,	Report(focus-bot, movement)
so I'll follow him around the tables.	Follow(focus-bot)
Last time he snuck behind me 'cause I was on the wrong side.	Report-past movement plan (learn not to allow same difficulty)
Um yup just taking little step keeping him, gosh thats probably about 10 feet to scale, ahead of me.	Follow(focus-bot) Strategy(keep set distance)
Oh he turned.	Report(focus-bot, movement)
Looks like he's heading toward the exit.	Anticipate/expect(focus-bot movement)
I'll follow him around.	Follow(focus-bot)

Participant's Utterances	*Coded*
I don't see any other robots here to confuse me so thats good.	See(PIO distractors:0) Strategy(if only one, assume the object you see is the same one – commonness of objects.)
I keep him in my line of vision here, giving..	See(focus-bot) Strategy(Objects continuously viewed are same)
these corners is kinda tricky but uh I'll be allright.	Navigational hindrance(architecture)
Big gray hallway.	See(perceptual-props(room))
Oh he turned, he	Report(focus-bot movement)
uh ooh, oh nuts! I got stuck on the hallway <transcribers note: ran into wall>	Navigational hindrance(architecture)
I think he's the only robot in there,	Strategy(if only one, assume the object you see is the same one – commonness of objects.)
ooh come on. Through the door,	Move(adjacent-room)
ah nobody else in here! Ahh safe!	Strategy(if only one, assume the object you see is the same one – commonness of objects.)
Um here he goes, through the doorway and around this little corner here.	Report(focus-bot movement)
Um Still the only robot in sight so that's good.	See(PIO robot:1)
I think I'm a little too close to him now - let him get ahead a little bit. eh, just stay close around the corners, 'cause thats where I tend to lose him.	Plan(maintain ideal distance for following without losing sight of robot)
He's probably going to turn into this doorway on the right. Ahh yup there he goes.	Anticipate/Expect(focus-bot movement)
So I should be able to just jump into this room and follow him.	Follow(focus-bot)
Oh back in the room with all the computers on desks. Oh maybe a different room with computers on desks, I wasn't paying enough attention.	Speculate(identity(current-room))
<chuckle> I think we just went in a circle, we should be back where we were.	Speculate(map)
Now he's gone on the other side of the tables since last time,	Report(focus-bot movement)
stay behind him.	Follow(focus-bot)
Maybe a little closer this time so he doesn't lose me when he turns	Plan(maintain ideal distance to not lose site of focus-bot)
... he's not turning at this doorway, so he's gong to the far side of the room.	Anticipate/Expect(focus-bot movement)
<silently follows for a few seconds> I see another robot in the next room	See(PIO distractor)
so I gotta stay close to him or else I'm gonna lose him.	Strategy(objects continually viewed are same)
He'll probably go right through that doorway,	Anticipate/Expect(focus-bot movement)
I'm just going to tail him to see if thats what he's going to do.	Follow(focus-bot)
yeah, so I'm in the next room here.	Move(adjacent-room)

Participant's Utterances	*Coded*
With that one big mainframe looking thing.	See(distractor/perceptual-props(room))
He's kinda sliding over towards that doorway, that's probably where he's headed for,	Anticipate/Expect(focus-bot movement)
yeah, oh yup there he goes, yeah,	Expectation fulfilled
as long as he turns left I'll be ok.	??
yup still in my line of site. He's going,	See(focus-bot)
oh he stopped there.	Finish-task

<end of task> Subject was successful.

<retrospective report> I tend to lose him on the corners. I think part of that again is just because I'm used to the uh, strafing with the alt key. Which is just kind of uh, thats a comfortable movement for me. if I was tailing somebody, doing alot of first person shooters, I'm kinda used to that idea where you got one guy in front of you, you just want to keep 'em in front of you. You see him head towards a door, he's just going to go towards that door so you just make a Bee-line for the door and stay right behind him. um so I don't know how much that reflects into like real world, but thats... thats kinda the strategy for tailing people in computer games anyway. Um yeah one thing that was kind weird was that you didn't seem to have a way he was facing. He just kinda went in directions, which was kinda weird because I kinda wanted to make a face out of the nose and the arm thing there, but as long as I stayed close behind him I could kinda determine where he was going to go next. Heading towards doors and stuff especially.

Subject 9

Task 4

Participant's Utterances	*Coded*
Ok	Begin-task
I'm following the robot.	Follow(focus-bot)
Oh man! sorry, I hope I haven't lost my guide.	Lose(focus-bot)
<silent navigation> I'm going to do miserable in this. <silent navigation>.	Search(for focus-bot) Comment
Hello. <silent navigation>	
Oh this guy has already come out eh?	Infer(identity(focus-bot))
Ok, so, aaaahhhh man! Is this supposed to be <chuckle> <silent navigation>.	Subject had difficulty vocalizing while navigating
Ok I'm betting that he is going to ...., take that room.	Anticipate/Expect(robot-movement)

Participant's Utterances	*Coded*
<silent navigation> oopps. I hope, so we are going into a new room full of consoles.	See(distractors/perceptual-props(room))
What am I doing?	comment
Ok, I see him,	See(robot) Infer(identity(focus-bot))
but I don't know what he's - what is the optimal way of following.	Speculate(plan(follow(focus-bot)))
Ah, oh. yes. yes. <experimenter prompts>	Subject had difficulty vocalizing while navigating
yeah, so I'm going out, going out and hopefully manage to go out,	Move(adjacentRoom)
yes. Trying to keep track of this guide.	Plan(keep focus-bot in sight)
Who is going much faster than me.	Note(movement/mobility(focus-bot))
Ahh Hit a table, in a new room.	Navigational-hindrance
And this guy has vanished into another room.	Not(see(focus-bot))
<silent navigation> Oh man! So I'm taking a bet, and I'm trying to figure out,	See(robots) Choose(robot):strategy(guess) Infer(identity(robot)) **
ah, <silent navigation> So I'm running like hell to the robot.	Move to robot / Follow(robot)
Which is, who is actually, being very generous at this point and not going to any of the rooms.	Report(robot movement)
[experimenters note - subject has now chosen the wrong robot]	
This guy is going out of the corridor,	Report(robot movement)
no, what is he trying to do??	Speculate(robot movement)
oh he's just trying to - hit one wall and another,	Note (robot movement)
so I'm kind of happy now.	Report task easier
ohhh oh oh, Should have given me a prior warning. oh-oh-oh, no	Comment Subject had difficulty vocalizing while navigating
. This guy is coming back.	Report(robot movement)
oh, so thats a-	See(robots:2)
So which one am I supposed to follow. There are two robots now?....	Confusion(identity(robot))

<experimenter stops experiment, subject has chosen the wrong robot.>

<note: subject never saw two robots at the same time except at the very end.>

<retrospective: what strategies - and why did you choose the one you did?>

Well I had no clue that its a different robot. If I had known that there were more than one robot, I probably would have been more careful but I didn't know. I guess strategies, just, if your more used to

moving, around - then you'll do better. And keep a little bit of distance between you and the robot. because you are not as good in maneuvering.

Subject 10

Task 4

Participant's Utterances	***Coded***
ok	Begin task
I'm following the robot.	Follow(focus-bot)
It seems to be taking a left turn and .. its entered a room	Report(focus-bot movement)
that has a number of chairs.	See(distractors/perceptual-props(room))
There appears to be another robot in there.	See(PIO distractor)
And .. it is now taking a turn to the right as it goes into what appears to be a classroom or something.	Report(focus-bot movement) Label(room)
Annnd It is just on its way out of this room I believe.	Anticipate(focus-bot movement)
I'm following it into the, what I presume is a corridor.	Follow(focus-bot) Label(room)
There is another robot which has just come out of a room on the side.	See(PIO distractor)
I'm following this robot.	Follow(focus-bot)
There is some weird kinds of artifact on the desk there.	See(distractors/perceptual-props(room))
<clear throat.> There are a total of three robots in here now.	See(PIO distractors:3)
But.. and they seem to be moving randomly.	Understand(robot-movement) Strategy(if distractors move differently than focus-bot can identify it)
There are four robots now.	See(PIO distractors)
My robot seems to be going into what looks like a computer lab.	Report(focus-bot movement) Label(room)
I'm following it into the lab.	Follow(focus-bot)
It's taken a turn to the right and seems to be going to the head of the room.	Anticipate(focus-bot movement)
<follows quietly for several seconds till experimenter prompts subject> Ah - ah I'm just like following it as	Follow(focus-bot)
it keeps makings its way to the exit at the end of the room. Now it has taken a turn to the left	Report(focus-bot movement)
and it seems to be heading to the exit in one of the walls.	Anticipate(focus-bot movement)

Participant's Utterances	*Coded*
And it is out in the corridor and it seems to have taken a turn to the right and is making its way down the corridor again. I'm, and now it has taken a turn to the left and has entered what ... is	Report(focus-bot movement)
I'd don't know, it appears to be some kind of a .. eating place. Which.. With the vending machines and a microwave oven.	See(distractors/perceptual-props(room)) Label(room)
And it has now taken a turn to the right and it seems to .. its gone into the corridor once again. And its going straight on ..	Report(focus-bot movement)
I'm following it.	Follow(focus-bot)
I believe its going to take a turn to the right now.	Anticipate(focus-bot movement)
It does.	Correct(anticipation)
And I think we are back in the computer lab. This time from the entrance at the end of the room. ...	Infer(identity(current-room))
there seems to be another robot up there ahead	See(PIO distractor)
which seems to be moving in and out of the lab.	Report(distractor movement)
This robot is .. Ah is making its way to the rear of the room. ... Ah continues going to what I believe is the rear exit. .. <clear throat> aaahhh and now it isssss .. going out of the room. Yeah its out. Its into the room	Report(focus-bot movement)
which has three other robots.	See(PIO distractors:3)
And ah. I think its on its way to the exit from this room as well. ...	Anticipate(focus-bot movement)
And its out in the corridor again. <clear throat>	Report(focus-bot movement)
and ah oh we're done! ok.	Finish-task

<subject successfully finishes>

retrospective:

Oh I think it , <cough> the only confusion was in like one of those rooms where there were like three other robots so I tried tried like to focus on the head you know, I mean this I think was kindof red at the time, I'm I'm not very sure. But I just got the impression that you know, I didn't look at the other robots basically, but when I was looking at at the spot on the head. It it appeared to be red. Maybe its an illusion or something but anyway I - I just tried to basically keep looking at it and I didn't, like, look at the other objects even as if they were. you know, coming across my path and all that so ...

yeah so basically I was just like, looking at his robot, even as other objects were, like, coming into my view I- I deliberately, you know, tried not to look at them so that I didn't lose track of this one.

Subject 11

Task 4

Participant's Utterances	***Coded***
I'm looking at the robot now.	See(focus-bot)
It's turning left into a room.	Report(focus-bot movement)
I'm following it left.	Follow(focus-bot)
I see another robot.	See(PIO distractor:1)
and I see one two three f- four and seven chairs on the room - in the room.	See(distractors/perceptual-props(room))
And then I follow n- the same robot.	Follow(focus-bot)
and uh, I see more chairs here, one two uh I don't have to count ok.	See(distractors/perceptual-props(room))
So I follow that robot,	Follow(focus-bot)
I see a board on the table there.	See(distractors/perceptual-props(room))
And the robot is turning into another room.	Report(focus-bot movement)
I get into that room. <navigation>	Move(adjacent-room)
I'm just moving along with the robot.	Follow(focus-bot)
I see a filing cabinet in that room.	See(distractors/perceptual-props(room))
And then I move into another room which looks like the laboratory	Move(adjacent-room) label(room)
- with a lot of computers. <navigation> Each computer's got a chair in from of it.	See(distractors/perceptual-props(room))
I'm moving alongside of the computers next to the wall.	Move()
There are two computers on every row and there are one two three ... five rows of such computers with ten computers totally.	See(distractors/perceptual-props(room))
I've changed directions I'm moving along with the robot,	Follow(focus-bot)
I'm turning into another room, into kindof a hallway.	Move(adjacent-room) label(room)
The robot is turning into another room.	Report(focus-bot movement)
I'm getting into that room now.	Move(adjacent-room)
I see something like a - a cooking range. Kindof a kitchen with a table in it.	See(distractors/perceptual-props(room)) Label(room)
The robot has taken me into another room.	Follow(focus-bot)
Its kindof a hallway.	Label(room)
<navigation> I'm turning into another room now along with the robot.	Follow(focus-bot)
I'm coming through the other side of the computer lab. <navigation>	Infer(identity(room))
The same computer lab with ten computers - on each row - two computers on each row. Five rows of such computers.	See(distractors/perceptual-props(room))

Participant's Utterances	*Coded*
<4 secs navigation> I'm getting into another room. Out of the laboratory.	Move(adjacent-room)
There's a big table, with a kind of a chest on top.	See(distractors/perceptual-props(room))
I'm getting out of the room now,	Move(adjacent-room)
following the robot. <experiment ends>	Follow(focus-bot)

<retrospective strategy?>

oh, in the beginning, I never thought that there would be more than one robot. So in the first room when I met two robots - and I was supposed to count the other objects <not true> I was just looking at the objects and not the robot so I guess, I might have missed the first robot in the first room. But then I, I just got my robot and followed it from the first room onwards and then I made sure that I don't miss it. But at the same time I was, looking at the objects in the room. And as per what you said I was just trying to count the number of objects but made sure that I followed the robot, just behind the robot all the time and then followed it basically wherever it goes. And then, - thats it, its about what I did.

yeah I have to keep it in sight, yeah all the time - that was my main goal. I was trying to keep it in sight.

And there are a lot of robots in here. Three of them I suppose, including the robot that I am following.

Subject 12

Task 4

Participant's Utterances	*Coded*
ok yeah	Begin-task
so I am following the robot	Follow(focus-bot)
and it got into another room	Report(focus-bot movement)
with three chairs and -	See(distractors/perceptual-props(room))
this is like, going to another room to the right of me.	Report(focus-bot movement)
And here there's a kind of classroom with a board and a table	See(distractors/perceptual-props(room))
and this robot is, like, its going into another room right now.	Report(focus-bot movement)
And this room is like totally empty.	See(distractors/perceptual-props(room))
And this - now it is going to another room to the left of it.	Report(focus-bot movement)
And there are alot of robots in here. Three of them I suppose, including the robot that I am following.	See(PIO distractors:2)
And its going to my left	Report(focus-bot movement)

Participant's Utterances	***Coded***
and its a storeroom with file cabinets ... and so on.	See(distractors/perceptual-props(room))
And its trying to go to another room with	Report(focus-bot movement)
- seems like a computer lab - lot of monitors ... in it.	See(distractors/perceptual-props(room))
And .... yeah like I am following the robot	Follow(focus-bot)
and its uh - its trying to go left.	Report(focus-bot movement) Ascribe(intention, focus-bot)
And now its going in a straight line.	Report(focus-bot movement)
So I don't have to do much ... just follow it.	Follow(focus-bot) Easy(Follow(focus-bot))
A--and i- this is ... still going straight.	Report(focus-bot movement)
and I just have to keep track	Plan(infer(identity(focus-bot)) Strategy(object continually viewed is same object)
and it turns left right now	Report(focus-bot movement)
soooo I'm also following it	Follow(focus-bot)
and it goes to another room - and straight again going in a straight direction now its turning right and.	Report(focus-bot movement)
There's another door,	See(perceptual-props(room))
it might turn left.	Anticipate(focus-bot movement)
No it goes straight. And uh it turns left at that room.	Report(focus-bot movement)
A-and this is a kind of lobby here. A lounge, and its Pepsi Machine and table.	See(distractors/perceptual-props(room))
And this one is going -	Report(focus-bot movement)
I'm stuck, ok	Navigational-hindrance [lose focus-bot]
but there is only one robot so I can follow it.	Strategy(persistence-of-objects; not enough time passed for focus-bot to move further and PIO distractor to be there)
And so its going straight	Report(focus-bot movement)
so there is another door to my right - so it might turn there.	Anticipate(focus-bot movement)
And it does - and it re-enters the computer lab. And <unintelligible > again goes to the right and again,	Report(focus-bot movement)
it has to go straight now because theres only way 'round here.	Anticipate(focus-bot movement)
... And .... So yeah there's a door to the right,	Anticipate(focus-bot movement)
but it skipped it and it keeps going straight.	Report(focus-bot movement)
ah I just have to follow it.	Self-instruction
And again there's a door coming to my - straight.	See(perceptual-props(room))

Participant's Utterances	*Coded*
I uh - so yeah this - back to the, yeah this back to the file cabinet. and uh	Infer(identity(room)) Report(location) See(distractors/perceptual-props(room))
.. yeah and like its going straight - and uh - it takes a right turn	Report(focus-bot movement)
- I think I'm - back to the place where I started.	Infer(location) Report(location)
And -- yeah I think its stopped there - from where it started. <chuckles>	End-task

<retrospective - strategies?>

yeah just like I was, just trying to keep pace with the robot first of all, you know just trying to keep it in front of me so that you know, if I - it comes to my backside I won't be able to mmm keep track of - on it - and suddenly three four robots come at the same time so I'll miss it. So the main this was just to keep to the side or back of the robot. That was the main thing -and just and keep following it - keep pace with the robot. So I think that was the strategy.

Subject 13

Task 4

Participant's Utterances	*Coded*
I find the robot	Find(focus-bot)
aaand he's going into room - the left.	Report(focus-bot movement)
I'm finding him.	Find(focus-bot)
Again, he's going to a room.	Report(focus-bot movement)
Crashes against the wall	Navigational-hindrance
and I go into room at the right. my right.	Move(adjacent-room)
The robot is going in front - between the chair and the table.	Report(focus-bot movement) See(distractor/perceptual-props(room))
now he's going to a room straight ahead in front of me.	Report(focus-bot movement) Anticipate(focus-bot destination)
I take a right turn. I take right turn and again take a left turn and go into a room	Move(room)
where I see another robot. I see two more.	See(PIO distractors:2):loc(current-room)
I s- try to follow that robot,	Try(follow(focus-bot))
but there are many others coming up my way,	Navigational-hindrance(PIO distractors)
I try to keep up those robot.	Try(follow(focus-bot))

Participant's Utterances	*Coded*
now the robot is going straight ahead into a room full of computers I suppose.	Report(focus-robot movement) See(distractors/perceptual-props(adjacent-room))
The room is straight in front of me.	Report(position)
Still following the robot.	Follow(focus-bot)
Taking a right turn and now going straight, from in between the tables with the computers and the wall.	Both-move(subject, focus-bot) See(distractors,perceptual-props(current-room))
Still following the robot straight.	Follow(focus-bot)
Its going straight ahead in front of me.	Report(focus-bot movement)
Uh-oh. I missed him.	Lose(focus-bot)
ok now he take a- took a left turn.	Report(focus-bot movement)
Now I'm going into a room, in fact, yeah now again I took a right turn,	Move(adjacent-room)
still following the robot,	Follow(focus-bot)
now it is taking a left turn. ah taking rrrright turn. <silent navigation> Again took a right, again took a right.	Report(focus-bot movement)
And I'm still following the robot. Still following it.	Follow(focus-bot)
I take it he's going straight, but now I guess he's going to take a right-	Anticipate(focus-bot movement)
yes which he did.	Correct(anticipation)
And I'm following the robot	Follow(focus-bot)
and I'm trying to f-, trying to focus on the path he's going.	Strategy( )?
I'm s- following it.	Follow(focus-bot)
I'm going straight ahead with the robot.	Both-move(focus-bot, subject)
And its turned. Still going straight ahead,	Report(robot-movement)
in the room with the computers I'm between the table and the wall.	Report(position)
Still behind the robot.	Follow(focus-bot)
Entering a room which has two other robots -	Move(adjacent-room) See(PIO distractors:2)
but that I'm trying to focus -	Strategy(keep focus on focus-bot don't lose sigt of it)
the robot is taking a right turn. Going to the right, its going to the right, its going straight now its again take- it took a turn	Report(focus-bot movement)
Following the robot -	Follow(focus-bot)
it took a right turn, now its going straight ahead.	Report(focus-bot movement)

<retrospective>

Um I was trying to focus my attention on the so-called arms of the robot. So that could really

distinguish, make me, distinguish between the other robots that were present in the room. I basically tried to focus on the three pipes which were coming out of the robot - so called hands of the robot. So I could follow it, try to keep pace with it and not lose concentration, not look anywhere else, just look at that particular object.

Subject 14

Task 4

Participant's Utterances	***Coded***
OK,	Begin-task
I'm in an alley.	Label(current-room)
And the robot's gone, turned left	Lose(focus-robot) Report(focus-bot movement)
ok. Um no. ok <subject is navigating furiously>	Subject has trouble vocalizing while navigating
I'm too slow I think at this.	
Ok ah I see, one two three four five six, six chairs.	See(distractors/perceptual-props(room))
Ok since the robot is this way I'll go	Move(last known location of focus-bot)
- I guess I'm little slow on this.	
<silent navigation> oh <subject laughs> ok I don't see the robot anywhere	Lose(focus-bot)
- so I'd better dash out. <silent navigation>.	Search-for(focus-bot)
oh he's oh-k'k'k'k there he is.	See(PIO distractor) Infer(PIO distractor, focus-bot) **
Ok hmm he's turns.	Report(PIO robot movement)
hmmm what is he doing!? Ok the robo's moving forward, backwards	Subject finds robot behavior to be abnormal
- he's gone into this room. ok.	Report(PIO robot movement)

<experimenter stops participant who has followed the wrong robot>

<Experimenter points out correct one and offers participant the opportunity to follow it - just for fun>

Participant's Utterances	***Coded***
ok he's going straight ahead, down the ally.	Report(focus-bot movement)
Straight - oh and he's disappeared,	Lose(focus-bot)
oh! ok and this time let me get this right.	
ok, he's gone into a room,	Report(focus-bot movement)
I see a table umm something like a heater,	See(distractors/perceptual-props(room))
and he's going into the next room.	Report(focus-bot movement)
oh! ok. Calm down.	
hes walking down - another hall. Going straight, <sigh> straight. ok fine. Straight into the other room.	Report(focus-bot movement)

Participant's Utterances	*Coded*
I see a table with - lots of tables with computers. Um theres a table and a chair with a computer. Ok <silent navigation> Ok I see another table with two computers.	See(distractors/perceptual-props(room))
There he is.	See(focus-bot)
<subject is silent, experimenter prompts subject> I'm just wal- following him.	Follow(focus-bot)
Ok, another table,	See(distractor/perceptual-props(room))
allright, he's walking down the room - slowly, ok, <navigation> ok,	Report(focus-bot movement)
There are two robots- three robots now.	See(PIO distractors)
He's gone into another room	Report(focus-bot movement)
where there is just a table with some object, square, rectangular object, sorry.	See(distractors/perceptual-props(room))
And he's going out of that room. Going into the hallway.	Report(focus-bot movement)
<silent navigation> he's disappeared,	Lose(focus-bot)
oh there he is	See(robot) infer(identity(robot))
- and he's stopped.	Report(focus-bot movement)

<retrospective>

Strategies? Like this, I knew, like I knew once he'd entered a room and if I - there was just one uh opening at the other side, I knew he was going to go through that opening. So I just had to follow him - close enough, in that direction. Anyways since I'm bad with my keys knew I didn't have to punch the wrong keys.

Subject 15

Task 4

Participant's Utterances	*Coded*
Ok	Begin-task
I'm talk - I'm going, whoops I'm going, left into the room	Move(room)
with several -	See(distractors)
ok where'd the robot go. I've lost the robot.	Lose(focus-robot) ** [focus robot is actually in sight along with distractor]
Perhaps he's gone into this room.	Speculate(location, focus-robot)
I've lost the robot.	
I think I'll go back to where I started.	Plan(return to start spot)

Participant's Utterances	*Coded*
I think I see the rob-	See(robot) Speculate(identity(robot))
whoops. I'm floundering,	
I'm looking for the robot. I guess I'll have to try another room.	Search
<silent navigation><experimenter stops experiment - note that the subject actually had both the correct robot and a distractor in sight when he initially started talking about losing the robot.>	

<tried it again "for fun">

<participant recognizes the robot as being a dalek from the old Dr. Who science fiction series>

Participant's Utterances	*Coded*
ok This is a dalek.	Begin-task
Ok, whoops.	Subject has difficulty vocalizing while navigating
The Dalek is heading for the chairs,	Report(focus-bot movement) See(distractors)
hes going right,	Report(focus-bot movement)
I'm going, right.	Follow(focus-bot)
now he's going <silent navigation> into the room whoops,	Report(focus-bot movement)
quick follow the robot	Follow(focus-bot)
<silent navigation> <experimenter prompts subject> what?	Subject has difficulty vocalizing while navigating
oh I'm following the robot I don't know what to say -	Follow(focus-bot)
ok he's leaving this room and	Report(focus-bot movement)
--- I'm following the robot down the hall.	Follow(focus-bot) label(current-room)
He turned left into the computer room	Report(focus-bot movement)
with several other robots.	See(distractors)
I think I still see him. He's	See(robots) Infer(identity(focus-bot))
.... whoops I've hit the table,	Navigational-hindrance
. I've lost sight of him,	Not(see(focus-bot))
but I think thats still him.	See(robot) Infer(identity(focus-bot))
He's heading towards the filing cabinet. he's going into the computer room.	Report(focus-bot movement) See(distractor) See(perceptual-props, adjacent-room)

Participant's Utterances	*Coded*
And I'm st- hot on his tail.	Follow(focus-bot)
whoops, If I can just- keep from crashing into a wall.	Navigational-hindrance
I'm going right, on the side of the table. Left, the right side of the table.	Move(around distractors) See(distractors)
I'm still in sight of the robot.	See(robots:1) Infer(identity(robot:focus-bot))
I'm crashing into tables though I'm - don't navigate as well as he does. Whoops come on! get off that table!	Navigational-hindrance
Ah just caught him before he left the room!	Follow(focus-bot)
These tables are q- quite the obstacle for me. <silent navigation>	comment
ah he's still there!	See(robots:1) Infer(identity(robot:focus-bot))
Ok I'm following down the hall.	Follow(focus-bot) Infer(identity(current-room))
<silent navigation> and <silent navigation> the robot is turning right so I am turning right.	Report(focus-bot movement) Follow(focus-bot)
<silent navigation> I think the robot will turn, right here,	Anticipate/Expect(robot action)
so I'm getting ready to turn	Plan(turn to follow)
right- well-p that didn't work.	Fail(Anticipate/Expect(robot action)(
I'm trying to anticipate what the robot will do this time so I can keep ahead of him, without crashing into the wall.	Strategy(anticipate(robot action))
It seems like I've been here before. < silent navigation> and I had trouble going down this aisle.	Speculate(identity(current-room))
I -- am following the robot down the aisle.	Follow(focus-bot)
I'm planning on going through that door.	Anticipate/Expect(robot action) Plan(go to expected robot location)
So <silent navigation> <experimenter prompts subject> and I'm heading towards the door that I thought the robot,	Move(to door)
and there's other robots in the room.	See(PIO distractors):loc(current-room)
I gotta keep track of the one that I'm following.	Plan(infer(identity(focus-bot)))
Whoops, I'm looking for unusual markings on the robot to distinguish it from other robots. I see there's little gold -- plates on its head.	Plan(find perceptual-props which distinguish focus-bot from PIO distractors)

Participant's Utterances	*Coded*
<focus robot ends trip and experimenter tells subject so> So I didn't have a chance to look for gold plates on the other head. But thats what I was trying to do.	End task.

<retrospective>

<experimenter notes that subject lost sight of the robot a couple of times but continued to follow "this one"> This isn't the one!? <why did you choose this one> I thought I was in visual contact with that one. <experimenter reminds subject of a time when subject mentioned losing sight of robot but chose "this one"> The trajectory. I was, I plotted the trajectory and figured that this is where the robot would be - so I picked it.

<experimentor reminds subject of a second time that subject lost sight>

It was the same idea of - you know, where I expected it to be. on wa- you know the trajectory.

<strategies>

I tried to stay as close to it as possible. And tried to navigate smoothly, but that's what the problem was. I had trouble navigating, man- I'm mean, I think if I was smoother on the keys I could have been more successful.

Subject 16

Task 4

Participant's Utterances	*Coded*
I'm in a nice long hallway,	See(perceptual-props(room))
ooops whoah. I'm going to the left because I'm following the robot	Follow(focus-bot)
and I'm not going fast enough,	Doubt abilities
I'm going to bump into the chairs -	See(distractors/perceptual-props(room) Move(in room)
whoops, I gotta go the other way,	Move(in room)
robot's going through the door and I'm gettin' behind.	Report (focus-bot movement)
I'm going to the left.	Move(??)
now I'm following the robot again.	Follow(focus-bot)
I'm going - around the tables. I'm going to bump through the chairs.	See(distractors/perceptual-props(room) Move(in room)
whoops, I'm bumping into the chairs.	Move()

Participant's Utterances	*Coded*
Now I gotta go through the door, into the other room.	Move(adjacent-room)
the robots... how do I get through there?	Navigational-hindrance(walls)
I'm going to the left, ok I'm going to the left again. so I can go down the hall.	Move(in room)
and get into the other rooom.	Move(adjacent-room)
Hey wait a minute robot.	Address(focus-bot)
Hey how come there's two robots running around?	See(PIO distractors)
ok, I'm in the room. still following the robot.	Follow(bot)
oops Come on robot.	Address(focus-bot)
I'm going to the left, following the robot.	Follow(bot)
The robot's running around in the -	Describe (robot movement)
which robot am I supposed to follow? <experimenter declines to answer>	Query experimenter.
I don't know - I can't tell them apart. Ok, whoops going to the right. I'm still getting different robots.	??
<experimenter stops experiment when it becomes clear that focus robot has left and subject is choosing between distractors.>	

<retrospective strategies?>

I didn't really have any. <laughs> I was just trying to keep it in sight and then all these other robots appeared and got me confused. I didn't know I was going to have more than one robot.

<tried again "for fun">

<experimenter prompts subject> I'm going to the right. I'm trying to follow that silly robot, but I can't make this-these things work very good. Ok robot, nooow, whoops going to the left. Going forward, going to the right. I'm fol- I'm going into the other room. I'm goinnnnnng I'm running into the wall. Ok now here's where I'm going to lose the silly thing because I can't work fast enough. <silent navigation> Now which one was mine? <experimenter declines to answer> Thats the point - that I don't know 'cause I couldn't get in here fast enough.

Subject 17

Task 4

Participant's Utterances	*Coded*
<silent navigation> <experimenter prompts> Yup, just, trying to follow 'em.	Follow(Focus-bot)

Participant's Utterances	***Coded***
Try and keep hold of which ones which here, stay close to 'em so I don't g- hopefully don't get the two of these guys confused.	See(PIO distractor) Strategy(object continually viewed is same object)
<silent navigation> He's only got two choices here.	Anticipate(robot(movement))
oops I'm blocked so I gotta hurry - make sure I don't lose 'em.	Move()
<technical difficulty ends experiment>	

<subject tries it again to add to secondary data>

Subject Utterance	***Coded***
allright diff- oh same path,	Report(focus-bot movement)
<silent navigation> not two robots in the room this time.	See(PIO distractors:0)
I'm going to cheat a little bit because I know which way he's going.	Anticipate(focus-bot movement)
The whiteboard is a nice touch by the way.	See(distractor/perceptual-props(room))
All right, he's going to my right, just a little chase here. He's going in a room	Report(focus-bot movement)
with several others. That I can see already. <silent navigation>	See(PIO distractors)
Just keeping him in my field of view as much as I can.	Strategy(object continually viewed is same object)
He comes out the other side <silent navigation>	Report(focus-bot movement)
As we head into Norton 19 <a former department computer lab -experimenter/transcriber>	Both-move(adjacent-room) Label(room)
Trying to keep him so that I've got as many options for my path as I can get, while keepin' an eye on the paths that he has.	Strategy(anticipate(focus-bot movement): allow movement alternatives for subject)
Allright, he's made his choice.	Report(focus-bot movement)
The following gets easy.	Follow(focus-bot) Easy(Follow(focus-bot))
<silent navigation> It would be easier if speed was adjustable and I could have some constant speed like he has rather than <silent navigation> move and stop. Which is a little vaguely nauseating quite frankly.	Comment on navigation mechanism.
<silent navigation> <experimenter prompts subject> Let 'im go. he's only got one choice here.	Anticipate(focus-bot movement)
<silent navigation> I'm just tagging along.	Follow(focus-bot)
No strategy other than just staying near him, right now.	Strategy(object continually viewed is same object)
He's only got one choice <silent navigation>	Anticipate(focus-bot movement)

Subject Utterance	*Coded*
Back into the room with the mixed ones.	Report(location) Infer(identity(room)) See(PIO distractors)
I'll back up a bit to keep all of them in view, make sure I'm following the right one.	Strategy(object continually viewed is same object)
And he goes out - thats easy. <silent navigation>	Report(focus-bot movement)

<retrospective>

mostly just focused, I mean, sort of blanking our the - everything else as visual white noise and following the right one you know um keep the rest of them in my field of vision, just make sure you know, if there was some sort of, if they did cross pathes I wasn't surprised by it. But other than that just s- you know. Try and blank everyone else out.

<reminded subject of the time when robot went behind large object - other robots were in field of vision and focus robot wasn't what used then>

Actually I don't think the other - were in my field of vision at that point. one of 'em flased in front, but there was only two choices for the robot, ah either he had to come out the other side or go back the other way. And up to that point, no robot had ever reversed fields and made a uturn and gone back in the other direction so I was pretty sure he was going to come the left hand side so I just waited to make sure.

Subject 18

Task 4

Participant's Utterances	*Coded*
Task 4, I am ready.	Begin-task
Following the robot down the hall.	Follow(focus-bot)
He's turning.. to my left.	Report(focus-bot movement)
I am following him into the room, going through the door.	Follow(focus-bot)
He's avoiding the chairs,	Report(focus-bot movement) See(distractors/perceptual-props(room))
and there are two robots,	See(focus-bot) See(PIO distractor)
which is kinda confusing,	Distractor is confusing
but the one I'm following is going into the other room< chuckle> He's still facing me, he's turning.. to my right,	Report(focus-bot movement)

Participant's Utterances	*Coded*
so I turn and follow him as he goes past the table.	Follow(focus-bot) See(distractors/perceptual-props(room))
And his guns don't at all point where he's going, which is kinda confusing, but.. Still able to follow him.	Unexpected-behavior from focus-bot makes following more difficult
He's going straight down the hall. He's going to the left towards the table - and he goes diagonally, away from the table.	Report(focus-bot movement)
I'm trying to keep him close to me so I can tell between him and the other robot <chuckle> [note: at this point there is another robot paralleling the one subject is following]	Strategy(keep focus-bot nearer than PIO distractors)
He hasn't changed directions, so I can still tell which one is him.	Strategy(expect focus-bot to continue to move in same direction)
He's going into the other room,	Report(focus-bot movement)
looks like a computer lab. <chuckle>	Label(room)
And... its pretty easy to follow him here because there are no other robots around.	Strategy(if only one robot visible, infer any robot seen is the one you saw before)
He's just going in a straight line past all the tables.	Report(focus-bot movement)
Am I giving you enough info on the tape here? <chuckle>	Query experimenter
He's turning again and going out into the hallway.	Report(focus-bot movement)
I'm just trying to keep him close to be so I don't lose him.	Strategy(keep near focus-bot)
He turns to the right, my right.	Report(focus-bot movement)
I follow him.	Follow(focus-bot)
He's just going in a straight line .. down the hall	Report(focus-bot movement) Anticipate(focus-bot movement)
doahp!	Fail(anticipate(focus-bot movement))
turns to my left.	Report(focus-bot movement)
So I go into this room.	Move(adjacent-room)
And there's a Pepsi machine <chuckle>.	See(distractor/perceptual-props(room))
And... its hard to tell which way he's going to turn to, because he faces all different ways when he goes in a directions.	Difficult(anticipate(focus-bot movement))
So I'm trying to, stay, not too close, because I don't know which way he's gonna go, but , not let him out of my sight.	Strategy(follow from short distance so that bot doesn't move out of sight)
He's going towards the wall, turns to my right, back in to the computer lab. .... [pause] going along the wall.	Report(focus-bot movement)
And slightly, looks like he's going to run into the table,	Anticipate(focus-bot movement)
nhoap! he straightened out. .... and ...	Report(focus-bot movement)

Participant's Utterances	*Coded*
There's another robot in this room. He's up against the wall.	See(PIO distractor):loc(current-room)
And my robot is going through the door.	Report(focus-bot movement)
Oppp. The robot got in my way [a different perceptually indistinguishable robot].	Navigational-hindrance See(PIO distractor)
I try to go through the door. I'm in the other room with..	Move(adjacent-room)
four other robots.	See(PIO distractors)
Trying to keep mine close to me so that I don't lose him.	Strategy(stay near focus-bot)
And he turns and goes out of the room and into the hallway again. And here he goes.	Report(focus-bot movement) Infer(identity(current-room))
We're done.	Finish-task

[Retrospective Analysis] [How did you decide to stay with your robot when others showed up?] < sigh> I was trying to .. just keep my eye on him basically and see if he was.. um like it was kinda easy when he would stay going in the same direction because you could just follow his path and see which one it was. um And then I would try and keep him close to me as to .. you know, not lose him in the crowd. Because it was with, when there were two or more other robots around.

[did you ever lose sight of your robot] aahh. no. No I didn't. I had my eye on him the whole time.

Yes well I was trying to hard to keep my eye on the robot actually that I, think I ran into a couple of the robots. <chuckle> Because I knew that if my, if my, you know , my attention was on another robot that I might lose him. So I just tried to keep focused on the same one. An follow his path across the room.

Subject 19

Task 4

Participant's Utterances	*Coded*
Ok	Begin-task
now I see a robot which I saw. yeah	See(focus-robot)
The robot's moving left; it goes into a room	Report(focus-bot movement)
which has about .. uh 3, 6 7 seven chairs.	See(distractors/perceptual-props(room))
ok. the robot's getting me into	Follow(focus-bot)
a sort of classroom which has a white board a table and and more chairs.	Label(room) See(distractors/perceptual-props(room))
Its s trying,	Ascribe(intention ??)
yeah I'm just trying to see the room oh,	See(perceptual-props(room))
ok there are two robots,	See(PIO distractor:??)

Participant's Utterances	*Coded*
do I follow? I I hope I didn't miss my robot.	Lose(focus-bot)
I follow this robot.	Infer(identity robot:focus-bot) **
ok, its, its again going into the same room,	Report(robot movement)
there are two robots,	See(PIO robots:2)
can I follow any of the robots? <experimenter: you are supposed to follow the one you started following.>	Query(experimenter)
I really didn't know if there would be more robots <undecipherable>	Give-up

<retrospective>

<when you came out of the room you saw the two robots. how did you choose which one to follow>

ok, its like, uh I looked when I came out, I looked on both sides, ok and I only saw on the left there were no robots and on the right there were two robots so I was like, little confused. And both of the robots went into the same room, so I kindof followed both of them, trying to figure out which I was, which I didn't exactly remember. I never anticipated that I'll have more robots and I'll, I'm supposed to keep track of my robot. So when it was out of my sight, I was and when I saw many robots, I was like very confused. And I just like uh, I usually try to, I'm a lefty, so I cho- I had an inclination towards the left robot, and I though, I mean uh, it was just an instinct sort of thing. I had to choose one of the robots sort of. So I chose the left out of , and that too uh I mean, in the first room. 'Cause I chose uh robots, I mean I had, I saw two robots here right? one and two I chose the left one, I thought it might be the one because um, it was a little on left and it was a little near and it went through this and so um maybe it just went ahead of me, so it should be a little nearer to me. And if you follow this path, this robot would be nearer to me than the other one, so maybe this is the one I should follow. which was nearer to me.

<when you first go through the room - did you see the other robot?>

No, not at all, I had no idea there would be other robots.

Subject 20

Task 4

Participant's Utterances	*Coded*
Ok um,	Begin-task
I see the robot	See(focus-robot)
and I'm following straight	Follow(focus-bot)
he turns to the left.	Report(focus-bot movement)

Participant's Utterances	*Coded*
So I'm going to follow that robot -	Follow(focus-bot)
although I'm having a difficult time getting in the room.	Navigational-hindrance(static object)
Ah I see a bunch of chairs	See(distractors/perceptual-props(room))
and the robot's going around to the right.	Report(focus-bot movement)
I'm following the robot to the right and to a third room, or second room,	Follow(robot) Label(room)
um and this this room I see sort of like a teaching atmosphere a desk and chairs, a board on the wall ahead of me.	See(distractors/perceptual props(room))
I turn to the right and follow the robot once again into the corridor. Um, make a right in the corridor.	Follow(focus-robot)
Um I'm following the robot straight. Make a left into a room,	Follow(focus-robot) into adjacent-room
which has a table, some type of computer on it, some type of... mechanical thing on it,	See(distractors/perceptual props(room))
uh and three other robots,	See(PIO distractors:3)
so just sort of, one robot went into the middle.	Report(movement POI-distractor)
ah so I'm trying to find him again,	Search for (focus-bot)
and I've got him,	See(focus-bot) infer(identity(focus-bot))
going around the table to the left,	Both-move(focus-bot, subject)
and see another door which we are going through.	See(door) Both-move(focus-bot, subject , adjacent-room)
Um and in this room there is a series of tables with two computers on each and two chairs. Uh a picture on the left hand side- on the right hand side wall, I'm sorry.	See(distractors/perceptual props(room))
Um the robot goes to the right.	Report(focus-bot movement)
I'm following him to the right side of the desks.	Follow(focus-bot)
So all the desks are on my left now with the computers.	Report(position)
Uh which we turn.. left through, I guess in between two of the desks, to a door, into the corridor again. Now a right in the corridor.	Both-move(subject, focus-bot, adjacent-room)
I'm following him straight now through the corridor.	Follow(focus-bot)
I see a- door on the left which he's turning to.	See(door)
So I follow him inside the door.	Follow(focus-bot) through door
It looks like there is an oven of some sort. A Pepsi machine on the left. A table on the right, a stove a straight ahead.	See(distractors/perceptual props(room))
So I follow him into the upper right hand corner there's another entry, another doorway.	Follow(Robot) describe in screen coordinates

Participant's Utterances	*Coded*
A looks like I'm in a .. different corridor this time, .. than the original.	Infer(identity(current-room))
ah Following him straight.	Follow(focus-bot)
After he made a right in the corridor and I see the original corridor on the right.	See(rooms) Infer(identity(rooms))
um And a door on the right. A doorway.	See(door)
Now I'm in a room. with two computer desks, one on either side of me. Right on the entrance.	See(distractors/perceptual props(room))
It looks like the original computer room that I was in prior to... um where we sort of went back to the corridor, which I think it is.	Infer(identity(current-room))
Um again the pictures on the left, I'm looking at the back of the computers now, before I looked at the front.	See(distractors/perceptual props(room)) See(orientation(distractors/perceptual props(room))
Ah following him now along the right side.	Follow(focus-bot)
Back to the - where we came from.	Anticipate(focus-bot movement) Infer(map)
Um making a left and then going through the.. entrance in the center of the room, the center of the wall.	Both-move(focus-bot, subject, adjacent-room)
Ah I see some type of electrical or .. a filing system on the left	See(distractors/perceptual props(room))
and I'm following the, the robot out to the right,	Follow(focus-bot)
in which, now all three robots are in the corridor, or all four now.	See(PIO-distractors:3)
Um I'm still following my original one.	Follow(focus-bot) Infer(identity(focus-bot)
Looks like he got a little stuck.	<task is done>

<the experiment is actually done at this point, the experimenter tells the subject so>

<retrospective>

Um well when it was just him, I tried to get my surroundings and see what was going on so I knew where I was, you know just the same as the other one just follow successively through just trying to take note of everything that is going on in case I need to go back or anything. Um and then when it came with the three.. I almost got lost because I was looking at the ah the box, I don't, it was some type of electrical equipment that was on the table in that, the room on the right hand side of the corridor. Um where the three robots were, the three extra robots were. I almost got lost, um but then I realized that one robot sort of went astray, so I just assumed that that was the one to go to.

<experimenter breaks in: why did you assume that that was the one?>

Um I don't know, maybe because of my exper- I -I -I- just instinct. I just went with that one. Um you know, I sort of try to keep my eye on him, but I thought I lost him, I took my eye off. So then when I put my eye back on I couldn't assume that that was him. You know thats what I'm saying it was sort of just I did have to assume that was him that I looked back at. But then the other thing was that the three robots were just, were moving um they were all pretty much moving the same way. Uh inside that little corner of the room and then that one went astray and that's when ok - that was the right one that I put my eye on. You know I sorta had to reconfirm, um and then just following him, um you know, I really didn't have a strategy with following him. It was just a little slow so, it allowed me to really get my surroundings and see where everything was. And then I recognized the the computer room, being back in the computer room because I was able to do that, 'cause he was a little slow I was about to see ok the computers are all lined up in the middle, there was a picture on the right hand side - oh I'm back in that room again but just from a different angle. So.

Task 5 Codes

Task 5 transcript codes begin here

Subject 7

Task 5

Participant's Utterances	***Coded***
I see a table on the left hand side.	See(distractor)
I move forward first, turned all the way around	Search(current-room)
and I saw one robot going past.	See(robots:1)
I have two choices for the rooms, one on the left and the other on the right.	See(doors;2)
I decide to take the room on the left.	Choose(door)
I enter the room on the left.	Move(adjacent-room)
And I go in the leftmost corner of the room so as to get the best field of vision.	Plan(concurrently-see all objects in room)
I notice that there is not a single object in this room.	See(objects:0):loc(current-room)
But through the door which leads to another room beyond which I entered this room, I see a couple of robots...	See(robots:2):loc(adjacent-room)

Participant's Utterances	*Coded*
One of the aspects that I'm thinking in my mind right now is a debate as to, I sh.. whether I should enter that room or try to, figure out how many robots are there from here itself since the robots are moving.	Plan(enter room or look from here)
Since I cannot make an accurate judgment by standing here, I decide to go and stand in the door of that room.	Move(near, adjacent-room) rationale:can't see enough from prev-position
<pause> As I enter the door of the, doorway of the room, to me it seems that there are four robots.	See(robots:??) report(intermediate-result)
This is without changing my angle of vision too much.	
I have, there are two key characteristic features of these robots. One is, one kind of robot have red and yellow stripes, the other have black spots on a white background.	Note/describe(perceptual props of robots)
There is also a table in the room.	See(distractor)
The walls of the room are checked, striped.	Perceptual-props(room)
And based on this I can conclude that there are four robots in this room.	See(robots:4):loc(current-room)
So I decide to go to the next room.	Move(adjacent-room)
Which seems empty.	See(objects:0):loc(current-room)
I turn three-sixty-degrees around to confirm that it is empty	Search(current-room)
and I move to the next room.	Move(adjacent-room)
Where i see one robot.	See(robots:1):loc(current-room)
Now I remember that, when I had started off, I had seen one room where this kind of a robot was moving around. and I am presuming that this is that room.	Infer(identity(current-room))
to confirm that, I'm going to enter the next room and see if I remember this is the room where I started off.	Plan(move to adjacent-room to identify current-room)
And to confirm that there should be a door <next said in a very happy tone fo voice> yessss, I think so. <pause>	Carry-out plan
Ok so yes, I think I have reached my starting room...	Infer(identity(current-room))
so I'm going to conclude that there are five robots.. in all the rooms.	Report(results)

Subject Correct; Total time 4:22

Subject 9

Task 5

Participant's Utterances	***Coded***
Allright,	Begin-task
so I'm going and oh goood.	Move(in current-room)
All right, let me go in this room.	Move(adjacent-room)
There is one...	See(robots:1)
<navigates silently for a few second till the experimenter prompts subject>	Subject has difficulty vocalizing while navigating.
yeah so I'm trying to .. find out if there is any other robot in this room.	Search(current-room)
I'm taking my .. try ...	Subject has difficulty vocalizing while navigating.
and there are two more	See(robots:2) infer(different, seen-bots, prev-bots)
so there's three.	Report(intermediate-results)
<navigates silently for a few second till the experimenter prompts subject>	Subject has difficulty vocalizing while navigating.
yeah so I've a moved to,	Move(adjacentRoom)
his is the what, sorry, this is the ff--..	Subject has difficulty vocalizing while navigating.
t third room.	Label(room)
<navigate silently for a couple of seconds> I don't want to collide with the robot.	See(robots:1) plan(avoid robot)
oopps oh sorry. <runs into table> why don't I move? Oh because of the table?	Navigational-hindrance.
<navigates silently for a couple of seconds>	Subject has difficulty vocalizing while navigating.
So I've seen four robots so far	Report(intermediate-results)
but this is the, this is a new room.	Infer(identity(current-room))
Umm let me try to see... ok so that..	Search(current-room)
I'm guessing thats a <chuckle> thats a new room but yeah thats, that is a new room.	Infer(identity(room))
So this is the fifth<robot>	See(robots:1) infer(different seen-bot, prev-bots) report(intermediate-results)
, yes sixth,	See(robots:1) infer(different seen-bot, prev-bots) report(intermediate-results)
<navigates for a moment then addresses the experimenter> John I'm not very sure whether I'm going to new rooms. I'm just hoping that is the case. <chuckles>.	Speculate(map)

Participant's Utterances	*Coded*
<navigates further silently as the experimenter declines to answer the implied question>	
ah ... <navigates silently a few seconds> So One two, one, two. So this is ...	Subject has difficulty vocalizing while navigating. Subject rapidly moving through rooms, seeing robots and vocalizing rarely.
<silent navigation> ..... ooops sorry. <experimenter prompts>	Subject has difficulty vocalizing while navigating.
yeah so I'm just going back and <chuckle> sorry. And moving into the rooms again just to make sure that-,	recheck
so my bet it one-one-two-one, five.	Report intermediate results in the form of number of robots in each room in the suite
But let me check this room first again.	Check adjacentroon
Which is presumably the first room.	Infer(map) infer(identity(room))
<silent navigation> yeah. so I'll say five.	Report-results

<retrospective>

Well first, initially I was just moving from one room to another. And then I kindof realized I'm getting into a circle and so I went back once more just to find out if its tallying with what I initially counted. So that. One of them actually changed [rooms] it came from the second to the first, but, <chuckle> There was not a whole lot of permutation. You know they could all have changed rooms, which would have thrown me off. <chuckle>

Subject 15

Task 5

Participant's Utterances	*Coded*
Ok	Begin-task
I'll back off and take a count a perspective of the room	Search(currentRoom)
ok I'm ready to go to another room.	Move(adjacent-room)
I saw one robot there.	See(robots:1):loc(prev-room):time(past)
And I look -- around this room, quick scan.	Search(current-room)
There weren't any robots, any daleks in this room that stayed there so.	See(robots:0):loc(current-room)time:now)

Participant's Utterances	*Coded*
Ok so thats threeeee	[move(adjacentroom)] See(robots:2) infer(identity(robots) Report(intermediate-results)
and I'm hitting the table.	Navigational(difficulties)
<silent navigation><experimenter prompts>What?	Subject has trouble vocalizing while navigating
oh I'm trying to get to the next room before any of them move out.	Plan(move(adjacent-room):quickly) Strategy(see robots quickly before they can reasonably travel to places where identification is less sure)
And and go to another room.	Move(adjacentRoom)
I see two in this room	See(robots:2):loc(currentRoom)
so thats five.	Infer(different(seen-bots, prev-bots) report(intermediate-results)
And I should have one more room to go.	Infer(map) [subject moving to the next room]
. But I'm not sure if this is the- a different room or now.	Speculate(identity(current-room))
. So so far I've counted six.	See(robots:?)? Report(intermediate-results)
But I'm going back just to see if I can get another quick check.	Plan(recheck)
And I'm scanning the room to make sure that there's not a dalek in the corner somewhere.	Search(current-room)
And I see the clown dalek here.	See(robots:1) perceptual-props(robot) Label(robot)
aaaand the little black and white one I don't annd a clown here	[subject has changed rooms] See(robots:2):loc(current-room) Perpetual-props(robots)
- is that the same clown?	Speculate(identity(robot))
... appearantly.	Infer(identity(robot))
So I see, allright, there's two	See(robots:2)
... so thats four.	Report(intermediate(results))
I think I'm going to back up and just check this other room	Plan(check adjacent-room)
to see if- if its changed,	Rationale:(check on location of robot)
one,	See(robots:1)
<silent navigation> going into the room	Move(adjacent-room)
a quick sc-scaaaaan	Search(current-room)

Participant's Utterances	*Coded*
two, three,	See(robots:2) infer(identity(robots))
beat that robot before he goes in to the other room	Plan(move(adjacent-room)) before robot can
ah! too late! whoops not too late.	Move(adjacentroom) [before robot)
So quick scan of this room.	Search(current-room)
And there's one here	See(robots:2):loc(current-room)
so thats four.	Report(intermediate-results)
go into this room,	Move(adjacent-room)
one, clown rob- dalak,	See(robots:1) Perpetual-props(robot)
thats five,	Infer(identity(robot)) report(intermediate-results)
and go back into this room,	Move(adjacent-room) infer(identity-room)
how many rooms is this now?	Speculate(map)
So I still see six.	Report(intermediate-result)
I kindof think I'm - I may stick with six,	Report(intermediate-result)
but, I could do another check.	Plan(recheck)
So I'll start with the room with this table in it.	Label current-room perceptual-props(current-room)
And I see, one, two,	See(robots:2)
So I'll go into the room.	Plan(Move(adjacent-room))
And I'm going counter-clockwise.	Describe(own-movement)
If I can get past this thing.	Navigational-hindrance
So I'm in the second room - counter-clockwise	Move(adjacent-room) label(current-room)
I see one robot.	See(robots:1)
So that's three all together.	Infer(different(seen-bot, prev-bot))
I go into the next room.	Move(adjacentRoom)
With another table.	Perceptual-props(room) See(distractor)
Now I'm not sure this is the same room, I don't know.	Speculate(identity(current-room))
Four.	[see(robots:1)] report(intermediate-results)
<silent navigation> and the last room.	Move(adjacent-room) infer(map) infer(identity(room))
five.	[see(robots:1)] report(intermediate-results)

Participant's Utterances	*Coded*
But there only should be two in here so-	Expect(see(robots:2):loc(adjacent-room)) strategy(persistence-of-objects)
<silent navigation> Whoops. <silent navigation>	Subject has difficulty vocalizing while navigating
All right. I think I'm ready. I believe there are... Five.	Report(results)

<retrospective>

At first I thought there were six. but after checking, going through quick, faster this time, before they could move around, I believe I saw six-I mean five.

<*strategies?*> well I decided to go in one direction, not just haphazard, so I went counter-clockwise. If there were four rooms I could count them. I tried to go faster than the ro-the daleks were moving. To see if they would, you know. And I kind of watched to see if they actually did go from room to room. and this one mo-, you know I, I thought I saw them go in from one room to another room. But they didn't s- they just seemed to be wandering aimlessly, so you know I thought I could outpace them and get an actually count.

Subject 18

Task 5

Participant's Utterances	*Coded*
So I'm counting total number for robots in all the rooms... Explain what I'm doing and why I'm doing it.	Confirm-task
I am ready.	Begin-task
So I can... So I don't have to follow any of 'em. This is free form right?	Query-experimenter(Confirm-task)
Ok I see one robot,	See(robots:1)
I'm turning, to put him at my back and see if there are any other robots.	Search(excluding recent-bot)
There are no other robots in the room.	See(additional Robots:0)
Going into the next room,	Move(adjacentRoom)
there is a multi-colored robot, and one who looks like the last one.	See(robots:2) Note(perceptual-props(robots))
I'm turning back, that robot is still in the other room so I know that these are two distinct robots. From that one.	Check(identity(current-robot)) Infer(different, current-robot, prev-bot) Strategy(robots in much different locations seen in a short enough time are different)
Iiiiii think it would be helpful if I knew how many rooms there were.	Plan(infer(map))
So, I'm traveling around,	Move(all rooms)

Participant's Utterances	*Coded*
so I can, because I can't get an accurate count until I know, how many rooms I'm searching..Because, I don't know why.	Rationale:infer(map) is a precondition to accurate count/identification.
This one.. is the first room I was in. Or what I think was the first room I was in [subject is correct].	Infer(identity(currentRoom))
The robot has left.	Recall(see(robots:1):loc(currentRoom):time(past)) See(robots:0):loc(currentRoom):time(now))
So if I go and move faster than them, I can probably get an accurate count.	Strategy(move faster than robots) Strategy(robots in positions farther than prev-seen bot can get to in time elapsed must be different)
There's three in this room,	[subject has moved to the next room] See(robots:3):loc(current-room)
and I'm scanning again to make sure that none have left.	Recheck
There's three in this room.	See(robots:3):loc(current-room)
Going to the next room	Move(adjacentRoom)
there's one more.	See(robots:1) Infer(identity(robot))
Yup one more, after scanning the whole room, looks like one,	Search(current-room) See(robots:prev-counted only)
and in the last room,	Move(adjacentRoom) Infer(identity(currentRoom))
one more after that,	See(robots:1) Infer(identity(robot))
so I think thats five.	Speculate(intermediate-results)
But, that one could have,	Speculate(possible problem)
nope.	No problem
Allright. so it looks like five.	Report(intermediate-results)
Because I thought maybe the multicolored robot had traveled, into that last room that I just searched,	Explain(possible problem) Label(robots based on perceptual props)
but it looks like there are two multi colored robots.	
I'm going backwards, [subject traveled through the rooms going in clockwise (looking from top) this time instead of counter clockwise as subject did originally] through the rooms <chuckle> again just to make sure.	Move(all rooms) Recheck
Two robots here,	See(robots:2):loc(current-Room)
into the next room,	Move(adjacent-Room)
two robots here,	See(robots:2):loc(current-room)
and through the next room	Move(adjacent-Room)
which has none in it	See(robots:0):loc(current-room)

Participant's Utterances	*Coded*
and another multi-colored robot in the forth room going in reverse order	Move(adjacentRoom) Infer(identity(currentRoom) See(robot:1):loc(currentroom) Notice(perceptual-props(robot))
so that makes five. I believe there are five <chuckle>	Report-results

[retrospective]

Ahh well. I first tried to... um I realized that I needed a representation, um a mental representation of the layout of all the rooms. So I .. went around and looked at, you know, and realized that they were sort of, four rooms, each connected to two other rooms, forming a large square, and then tried to ahh, start in one room, see how many robots were there and then move faster than the robots, as to minimize robots shifting rooms, which seems to be the most difficult part of this task. To make sure that all the robots stay in the same room. Um and then I, so I went around to all the rooms, moving as fast as I could, entering each room and scanning it. And then going to the next room. So I searched all four rooms that way, and then made a estimate, a guess as to how many robots there were and then tested that by going reverse through the rooms again to confirm my original idea.

I was trying to go faster than the robots because, well I think I was moving faster than the robots, but I figured if I moved quickly, that would minimize chances of robots going between rooms. because that is, makes the task confusing. Because you try to split it up by room and see how many are in each room and then add them up, but if they shift between rooms then you totally lose count.

Subject 24

Task 5

Participant's Utterances	*Coded*
OK	Begin-task
there's one white robot in this room.	See(robots:1):loc(current-room) perceptual-props(robot)
And the red one in this, orange one.	[subject moves to an adjacent room] See(robots:1):loc(current-room) perceptual-props(robot)
There's one white over there	See(robots:1):loc(?? there?) perceptual-props(robot)

Participant's Utterances	*Coded*
so there are totally three.	Infer(identity(robots)) report(intermediate-results)
<silent navigation> and <silent navigation> the orange one is still in this room.	See(robots:1) perceptual-props(robot) infer(identity(robot))
And there's one more over there.	See(robot:1) infer(identity(robot))
so there are totally four,	Report(intermediate-result)
<silent navigation> and now I will <silent navigation> move really fast <silent navigation>	Subject rapidly moves through rooms Strategy(move fast enough to limit robot movement out of sight)
and there were two white in that room	See(robots:2):loc(room) perceptual-props(robots)
and <silent navigation> one in this room	See(robots:1):loc(room)
so basically <silent navigation>	Move(all rooms) search(all rooms)
ok three plus two.	report(intermediate(results)
- There is five robots. I think, I think there are five robots.	Report(results)

<retrospective>

Since they are moving first I tried to stay in this room and figure out like which room has how many robots. So the adjacent two rooms, I could look into them and find out. And then after that. I was sure that there was one in this and one in this and one orange in this. So, like, after that I went to the forth room. Which is in that corner. And that had two. So, and then like, after coming back, I sawe that. This one is, this white was here. so, like, the total was, five, because one plus two plus the two more orange.

<when you looked next time you noticed that one of the white ones had changed rooms?>

yeah, white one came from, like, when I went from this room through the right door, this door, what I saw was that no one was changing the room. And when I came back via another door. The white one was here. So it must've come by this door only.

<that didn't affect your decision?>

No because I had already counted it... in one circle. From moving this room this room and then this to the back one.

<ok what made you decide you had already counted it?>

Because when firs-, when at first, I saw um this room. There was only one. Orange. And when I was in this room, at that time also there was only one orange. And after that I went to the second room, which had two white. So the two white's were - I mean there was only one orange and no white. So the white must've come from either this room or that room. and like there are two doors only. And both of the rooms I know, already counted those, both of them.

<so you believed you had already counted both of them; so why did you believe it was one of the ones from those two rooms?>

I mean there are only two doors and the robots cannot appear from nothing right? so, so like, when I came back to this room. The one in this room was already there. So it has not gone to the neighboring room. And like and then there was one white moving around, which was previously not there. So that, that is only one way to come, come out from the, neighboring room to this.

Subject 25

Task 5

Participant's Utterances	***Coded***
[experimenter prompts subject]	Subject has trouble vocalizing while navigating
I am just entering the room in which I am supposed to find out the number of robots.	Move(adjacent-room)
I can see one robot...	See(robots:1)
It is an orange one…	Perceptual-props(robot)
This is the first robot I have seen.	Label(robot)?
I am just going to enter the other room…	Move(room)
the room with white tiles on the floor.	Identify(room) by Perceptual-props
I can find another robot.	See(robots:1)
That is a white one.	Perceptual-props(robot)
I can also find a third one.	See(robots:1) infer(identity(robot))
That is also a white one.	Perceptual-props(robot)
But I cannot find whether they are same or they are different…….	Speculate(PIO)
I am just entering the third room……	Label(room) Move(room3)
I can find the third robot,	See(robots:1) infer(identity(robot))
but I guess this is the same one as the first one but the room is different.	Infer(PIO robots) Infer(identity(robot):strategy(location)
…. Okey. I am now going to enter into the fourth room.	Label(room) move(room4)

Participant's Utterances	***Coded***
This is the fourth robot	See(robots:1) infer(identity(robot)
but I guess this will be the same	Infer(??)
…….so……. *[experimenter prompts subject]*	Subject has difficulty vocalizing while navigating
I am just entering the other room…..	Move(adjacent-room)
I have got one table here. I can easily find that this is a table	See(distractor)
…… Now the surfaces, means the edges between two walls are clearly distinguishable here	Perceptual-props(room)
….[experimenter prompts subject]	
Okey. I am going forward in the next room……	Move(adjacent-room)
. I can find more robot here….	See(robots:??):loc(current-room)
This is the same room I have entered before, I guess.	Infer(identity(current-room)
…….. This is two robots	See(robots:2)
…….. I am not sure though.	doubt
I find these two robots just fighting or something… ……..	See(robots:2) infer(actions(robots))
I am just entering in the other room.	Move(adjacent-room)
I can find two robots from here.	See(robots:2)
There are two……..	See(robots:2) subject has a hard time vocalizing while navigating
This is a different robot…….from the other one	Infer(identity(robot))
……..cause	subject has a hard time vocalizing while navigating
I am not sure how many robots I have seen but I guess I have seen three robots…. which are separated in these three, four rooms. Okey. Yap.	Infer(map)** Report(results)

[Experimenter asks for a retrospective]

Okey. I have construed them as a two and saw it. There are four robots, means there are two orange ones and two fighting – so a total of four robots.

[Experimenter asks about the fighting ones and the two orange ones. He shows the number of robots.]

Ah. Okey. There are five.

[Do you play these kinds of games where you run through a virtual world?]

ahhh… Not much. I have played this quake once before. *[just once?]* Yeah once. I am not familiar with these games before.

[some other questions]

[What strategy did you use to count these robots?]

I just entered the room and whichever robot I find, I just count them up. When I see something same kind of robot, I just use my mind to just distinguish between these two whichever is there in my mind earlier. If I cannot find dissimilarities, then I consider them to be, means, if I can find some dissimilarities, then I consider it to be a different one. Otherwise, my mind says that it is the same robot.

I am talking about similarities like these parts on the robot. *[I can see you are talking about perceptual …]* Yeah. *[So, if two robots happen to be manufactured by the same company and look jut the same…..]* Yeah…ah, maybe if I can see them within a fraction of time, means I can see at within the difference of two to three minutes, I can distinguish between them. Otherwise, it will look the same.

[experimenter talks in the background]

Subject 27

Task 5

Participant's Utterances	***Coded***
Yeah…	Begin-task
I'm in the room	See(currentRoom)
and there is one robot,	See(robots:1):loc(currentRoom)
second….	Move(adjacentRoom)
into the next room..	Move(adjacentRoom)
and there's another room to which I am going.	See(adjacentRoom) Move(adjacentRoom)
This is the third fourth fourth	Infer(identity(current-room))
and …this is completing a square sort of thing,	Infer(map)
five five and this is the same room I'm entering… ……	Report(intermediate-Results) Move(adjacentRoom) Infer(identity(newly-entered-room))
.soo…that's it.	
One in this room…..	See(robots:1):loc(currentRoom)
yeah….one room	Report(intermediate-results)
entering in this room.	Move(adjacentRoom)

Participant's Utterances	*Coded*
Two. Second robot I saw.	See(robots:1) Infer(different seen-bot, prev-bot)
And then, I can't told……	
third robot..	See(robots:1) infer(different seen-bot, prev-bots)
and I'm again completing a square to this fourth room,	Move(rooms) Infer(map) Infer(identity(current-room))
fourth robot.	See(robots:1) infer(different, seen-bot, prev-bots)
Previously, I saw five	See(robots):time(past) total (robots:5):time(past)
so it might have gone into the other room.	Strategy(multiple checks -> same total)Persistance of objects infer(actions robot)
Soo, one here,	See(robots:1):loc(current-Room)
two here, another room,	Move(adjacentRoom) See(robots:2):loc(currentRoom)
yeah I'm entering the another room,	Move(adjacentRoom)
two, thrree……twoooo,	Internal counting
three and I'm completing the square to this fourth room,	Move(adjacentRoom) Infer(map) infer(identity(currentroom)
four, five, yeah I'm sure about it. There are five robots,	Report(intermediate-results)
two in one room, one plus one, two…..and the second room there is one….robot, this is third, and two in the first, that room.	Move(rooms) See(robots) Report(robots-numbers) infer(different-robots)
Yes, so a total there of five robots. I'm pretty sure about it.	Report(results)

[experimenter: what strategy…..]

ahhhh I first just saw that there are four blocks like of room that is that completes one square. So, firstly, in first room, I saw one table and the third room there was one table. There was, there were two, you can say, landmarks sort of thing. There were diagonally kept, diagonally, and on one room there was one robot and as I navigated, I saw a whole corners so that I can have a clear view of all the robots and then I navigated that way but the, in the third room, there are, fourth room, there were two robots

at, one at the, one standing at the door and when I navigated next time, I, the I saw in the fourth room one robots. So I thought it might have gone to the other another room. So… I navigated that way.

[experimenter asks]
how did you know that it was not the same robot…..

because I had speed. My speed was competitively more navigating speed and the…but the speed with which that robot is navigating, it is bit slow. So, I thought that, it might, it cannot come in that faster in that room. So….

Subject 30

Task 5

Participant's Utterances	***Coded***
Okey..	Begin-task
this is one, one. I find one robot here..	See(robots:1):loc(current-room)
and ah, in the next room,	Move(adjacent-room)
I find another one……	See(robots:1):loc(current-room) infer(identity(robot))
.mmm…..i go to another room,	Move(adjacent-room)
I find the third……I find the fourth one,	See(robots:2) infer(identity(robots)) report(intermediate-results)
oh yeah. Ah, this is the one I can _____ four,	Subject has difficulty vocalizing while navigating report(intermediate-results)
……oh god! Where am I?	Doubt? Fail(infer(map))
I found four so far…….	Report(intermediate-results)
One, two,	See(robots:2)
….one in this room,	[subject moves to another room] See(robots:1):loc(current-room)
one here, ……one here…….	See(robots:??) [subject moving rooms?]
oh this is from the other room (?),	Speculate(identity(robot))
okey, four.	Report(intermediate-results)
One two, three and four…….one..yeah,	Report(intermediate-results)
ah I'm just trying to figure out what exactly, how many robots are there exactly	Plan(do task)
mmmmm I'm going to this room,	Move(room)

Participant's Utterances	***Coded***
a I find the table	See(distractor)
and there's a robot that's moving around in the room.	See(robots:1):loc(current-room) notice(robot-movement)
I go to another one,	Move(adjacent-room)
I find a robot that's stuck in the corner.	See(robots:1):loc(current-room[corner]) infer(robot-movement)
Surely, two other ..two in the rooms.	Infer(different seen-bot, prev-bot)
Then I go to this room,	Move(adjacent-room)
where there's another robot moving around,	See(robots:1):loc(current-room) infer(different seen-bot, prev-bot)
there's another table.	See(distractor)
There are in fact two robots over there, one that is stuck in the corner and one moving around the room.	See(robots:2):loc(current-room) notice(robot-movement)
And ah, all four robots are different colors, I think yes.	Perceptual-props(robots) **
Two of them are..yeah I think all four amm….and moving around. Yeah.	Subject has difficulty vocalizing while navigating
There's one robot which is, which is yellow, two in yellow and two in white in color	Perceptual-props(robots)
..ahh so they keep moving around. They in fact even change rooms. So they keep moving around rooms.	Infer(robot-movement)
And ah, …..mmmm, in this room, there's no robot,	See(robots:0):loc(current-room)
probably moved into the other room.	Speculate(movement(robot))
Hmmm……..how this one got stuck here for a long time. … this one as well.	Infer(identity(robots) Infer(movement(robots))
Two robots are nearly as fixed though they seem to be moving but they are not moving actually. From the time I started this game, it's been at that.	Infer(identity(robots) Infer(movement(robots))
So, only two robots are moving at the moment.	Infer(identity(robots) Infer(movement(robots))
There is one over here.	See(robots:1)
Okey. …So all _____ getting there one robot in each room.	Speculate(initial robot placement)
There's only four rooms and,	Infer(map)
…and one robot in each	Speculate(initial robot placement)
…mmmm, finally how many?	Repeat task
Okey. …… two tables, yeah. Four robots and two tables	Infer(map)
but I've been asked to find the robots so there there must be four. There are four, I think.	Report(intermediate-result)
Mmmmmm, I'm just now just going around the room like that.	Search(room)
So it must be four.	Report(result)

[experimenter asks questions] oh…

[so there's one stuck, etc.] okey

[what was the strategy you were using to count the robots?]

ah, basically for me, actually the two robots were stuck so….. two went off like that. *[experimenter explains something, says that it rarely happens]* and actually two was stuck was stuck in two rooms, the other two rooms. There were two, I found the two robots roaming around the place. And in fact, even when I went to the other room like one, once, there was no robot in there. There were two in the other room. So I was pretty sure like that it's gonna be four but…. *[experimenter says more……. There was a time you saw one orange and one silver or something robot was stuck. And so, then you saw an orange one wandering around. Then you have seen a silver one wandering around. But you only saw one at a time, except one time there were x x.x x so, did you notice the other one?]* ah no, because I, I would have taken sometime
a rounds around rooms so, I was pretty sure there was only four. Oh my god. This pretty sounds strange. Now there are three, four and one there ___. Okey. Alright.

[so, basically, you were just trying to do what?x x x]
yeah. I just wanted to..the room is pretty big, so like I just wanted to make sure and they were ____ moving around as well. So like, I just wanted to make sure there are only four. Mmmmmmmm (laughs) but surprisingly, ___, I don't know.

False start put here

I'm entering a room here where there are ……..oh my god(?)…….two? mmmmm then…… ……..two plus _____ ……..uh……..well….*[experimenter speaks – I can start this again…..]* okey. Is that one? *[okey. Ready?]* yeah..

Subject 35

Task 5

Participant's Utterances	***Coded***
Oh right now I'm in the room.	Begin-task
I'm just looking, every corner of the room, to see if there is some robot.. there.	Search(current-room)
<silent navigation> now I'm just going to another room	Move(adjacent-room)
and counting the robots there.	See(robots:??):loc(current-room)
There's one more room, on my left.	See(adjacent-room)
<silent navigation> Yeah I just went to that room.	Move(adjacent-room)
Um just looking at the number of robots there.	See(robots:??):loc(current-room)
<silent navigation> Just going to different rooms. Which ever room I can go.	Move(rooms)
<silent navigation> .... I move to a larger room.	Move(adjacent-room)
This one is bigger than ... I've been to before.	Perceptual-props(current-room) **

Participant's Utterances	*Coded*
One robot I can see in this room,	See(robots:1):loc(current-room
so <silent navigation> .....Now I'm in a new room,	Move(adjacent-room) infer(identity(current-room))
just looking, to see, a robot,	Search(current-room)
<silent navigation> .... <experimenter prompts subject>	Subject has difficulty vocalizing while navigating
yeah I'm just ... going through every room and trying to ... count the robots again.	Recheck move(all rooms) search(room)
hmm. <silent navigation> ..... Now I'm just trying to .. remember the rooms by the, pattern on the t-floor.	Plan(identify(rooms)) perceptual-props(rooms)
Then counting the robots again. <silent navigation>.....	Move(all rooms) search(rooms) see(robots:??)
Should I tell the, numbers? Six I guess. <due to a fluke in this test, this is actually right>	Report(results)

<retrospective>

Yeah, Intially I was just counting. Then I just, then I was not able to like, make out whether I was in this room before or not. Then I started looking at the floors and just looking at the patterns on the floors so I can just remember it was the same room. Yeah basically that one, that was what I was doing.

<they looked a like - did you have a strategy for counting them even so?>

Yeah like, there are two types, one is this white one, and another was, was then yellow and orange one. and like, these two are together in, stick together, I so I just count them as - and few were moving in separate thing. Like, moving alone there. And.

<they were moving alone?>

Like, I just figured out that just, two were moving alone and these two are together there. Like, these were stuck together.

<how did that help you?>

I'm not sure but I just, like, I thought that like, they are two, stick together, do they become seperate also? I don't know.

<and the other ones?>

Yeah they were moving from room to room so I was just trying to like figure out that I was just seeing them in this room and just entered the next room and so - so that how I just,ma- making some connection with that. That with the speed and they, are they moving back or?

Subject 39

Task 5

Participant's Utterances	***Coded***
Ok,	Begin-task
I've seen the first robot.	See(robots:1)
Annndd. Let me, ah, ah starts searching for others.	Search
Ah this is the other one.	See(robots:1) infer(different seen-bot, prev-bot)
Now they have different colors, so I can like, keep track of it.	Plan(use Perceptual-props (robots))
Gray one and...	Perceptual-props(robots)
oh! there other one of the same kind.	See(robots:1) perceptual-props(robot) infer(different seen-bot, prev-bots)
ahhhh, it has gone.	Not(see(robot))
So I've seen three robots till now.	Report(intermediate-results)
Three, three, and four. <silent navigation>.	[subject is moving in more than one room] see(robots:1) infer(different, seen-bot, prev-bots)
uh-oh. And one five.	see(robots:1) infer(different, seen-bot, prev-bots)
No robots in this room.	See(robots:0):loc(current-room)
hmm. <silent navigation>.	[subject moving through multiple rooms]
I think there are total five robots,	Report(intermediate results)
and I finally want to figure out,	Plan(recheck)
one, one, two,... three. one, two, three, ... four, five <silent navigation>.	[subject moving through multiple rooms] subject searching each room subject sees robots and infers they are different from previously seen robots

Participant's Utterances	*Coded*
<experimenter prompts subject> yeah, yeah. uh, I'm like making sure that, uh, the number I have counted, like five, is true or not. I'm just verifying that number.	Recheck strategy(persistence of object)
Yeah, by like navigating because I've seen, one robot in one room and three robots in other room.	Move(all rooms) assign (robots to rooms)
So I'm making it sure that it is the same count, when, every time I go, in that room.	use persistence-of-objects strategy to double check
But it is, I think, not the case. Two, and, yeah they are moving in the other rooms.	Understand robot move between rooms
One two. one, two. Aaaand no robot in one rooms.	Recheck – rapid navigation and searching
so I think, I'll finally conclude there are five robots and four rooms. <sigh>	Report(results)

<retrospective>

Oh first of all, I thought that I should make some marks that I've seen this robot, and some identifying characteristic, so that the next time I see that robot, I can figure it out, that I've seen this before. And I got some marks, in the first time, in that one robot is grey and the other has, is having some yellow and orange colors. But then I saw that there were other robots having the same colors so I thought, like I should make some different strategy. So I tried to find out how many rooms are there and if the robots are not moving outside the rooms, so if they are staying in the same room, so I can, like move, two or three times inside all rooms and finally figure out how many total robots are there and how many total rooms are there. And I did it that way only. And the last turn that I took was very quick, to check that out, that no robot moves out of its room when it was, when I'm moving. And I think, yeah, I made it like, I c- I counted the five robots very quickly and, like I was sure that there were five robots. Thats it.

Subject 43

Task 5

Participant's Utterances	*Coded*
OK, sooo	Begin-task
I'm walking forward.	Move(in room)
I spotted one robot.	See(robots:1)
I'm trying to follow the robot, so I keep an eye on him.	Plan(follow robot)
ok, so he's gonna stay in, this first room.	Infer(robot-movement)
there's a table,	See(distractor)
I'm turning towards, turning around, going left, going, through the first-... door.	Move(adjacent-room)

Participant's Utterances	*Coded*
Ok, there's another robot in this room	See(robots:1):loc(current-room) infer(different, seen-bot, prev-bot)
And I saw, another robot in the, I guess the, the third room. Ah through the doorway,	See(robots:1):loc(adjacent-room) infer(different, seen-bot, prev-bots)
OK, I'm tuning around, to see if there is any more robots.	Search(current-room)
And there's only one robot in, this room	See(robots:1):loc(current-room)
thats orange and yellow[transcriber's note: the robot is orange and yellow - not the room]	Perceptual-props(robot)
ok So I'm going into the, other doorway,	Move(adjacent-room)
where there are two more robots.	See(robots:2):loc(current-room) infer(identity(robots))
I'm moving backwards, trying to keep an eye on, that robot is skitsing out in the first, room.	Plan (move while watching a robot)
Going into it, he's sort of stuck in there.	Infer(movement/predicament(robot))
Allright, come back in the first room.	Move(adjacent-room) infer(identity(room))
Hey, ok there's another robot that got into this room,	See(robots:??) infer(identity(robots))
into the first room I was in.	Infer(identity(room))
Going into the forth room. ..	Move(adjacent-room) infer(identity(room))
Where there appears to be no robots.	See(robots:0):loc(current-room)
OK <sigh> So, going back into the first room,	Move(adjacent-room) infer(identity(room))
there's one robot that's stuck in the doorway, there's another robots that's, in that first room.	See(robots:2):loc(current-room) Label(robots)
So thats two.	Report(intermediate-results)
Go to the doorway.	Move(adjacent-room)
Allright and there are two robots in that third room.	See(robots:2):loc(room3)
And I still see the other robot through the doorway in the first room.	See(robots:1):loc(room1)
Watching out for the table.	See(distractor)
..Going into the second room,	Move(adjacent-room)
one, two, three, four.	Infer(identity(robots)) count/report(intermediate-results)
Turning around, um...	Search(room)
[quiet whisper] one, two,	Infer(identity(robots)) count/report(intermediate-results)
normal voice] so there's two robots in the first room.	See(robots:2):loc(room1)

Participant's Utterances	*Coded*
Moving back,	Move(??)
there's a, third robot in the second room.	See(robots:1):loc(room2) infer(identity(robot))
going into ... the third room,	Move(room)
here's two robots in the third room	See(robots:2):loc(room3)
t and, watching out for the table,	See(distractor)
going through the doorway,	Move(adjacent-room)
there are no robots in the forth room,	See(robots:0):loc(room4)
so that's be, two, two, and one,	Report(intermediate-results)/count
not two, wait, now I'm confused. <chuckle>	doubt
Ok, I'm in the second room.	Infer(identity(current-room))
Going through the doorway.	Move(adjacent-room)
I see one robot in the first room.	See(robots:1):loc(room1)
... turning around into the second room,	Move(room2)
seeing two robots;	See(robots:2)loc(room2)
they're the colored ones.	Perceptual-props(robots)
... going into the third room,	Move(room3)
I see two robots,	See(robots:2):loc(room3)
this is the room with the table.	See(distractor) label(current-room/room3)
Going into the forth room	Move(room4)
where there's nothing, there's no robots	See(robots:0):loc(room4)
. .. going back into the, doorway,	Move(adjacent-room)
where I crashed into one robot. ..	Navigational-difficulty
[whispers] two,	[see robots??] report(intermediate-results)
[normal voice] going over into this, second room	Move(room2)
where I just crashed into the, 'nother two robots.	Navigational-difficulty see(robots:2):loc(room2)
I'm going into the very first room I was in	Move(room2)
where there's one robot,	See(robots:1)loc(current-room)
so there is a total of five robots.	Report-results

<retrospective>

um making sure that they weren't going through the doorways, ah trying to be faster than the other robots, ahmm. And, trying to make sure that I wasn't double counting. um, luckily they stayed out of that fourth room so I didn't have to worry about them, moving in and out of that one. Um, actually now that I think back to it, if I had stayed in the,.. second room, I probably would have been able to look through both doorways, and keep an eye on all the robots instead of walking all the way around.

<experimentor: the forth room?>

If they hadn't gone into the forth room.

Subject 45

Task 5

Participant's Utterances	***Coded***
Okey.	Begin-task
Looking for a robot.	Search
I see one and heading to exit.	See(robots:1) ascribe(robot, intention)
That's one.	Report(intermediate-results)
.. I look around.	search
I don't see anything.	See(new robots:0)
I assume that that's the same robot that I saw earlier.	See(robots:1) speculate/infer(identity(robot))
I'm gonna follow it.	Plan(follow seen-bot)
Going to the next room,	Move(adjacent-room)
I see a second one,	See(robots:1) infer(identity(robot))
that's two.	Report(intermediate-results)
That's three.	See(robot) infer(identity(robot))
Quickly checking to see if there's anything else around.	Search:speed(quick)
I've seen three robots, one multicolored and one black and white. So that's three.	Perceptual-props(robots) report(intermediate-results)
Going on to the next one…….	Move(adjacent-room)
oh-oh oh-oh no I'm not sure whether that's the same one that I saw earlier….	See(robots:1) doubt Speculate(identity(robot))
So three. 'key.	report(intermediate-results)
Gonna quickly go back and see oh-oh ….	Recheck Move(adjacent room to check prev-bot)
Back to get an orientation of all those three rooms there.	Plan(infer(map))
… to see …	Subject had difficulty vocalizing while navigating
I'm looking at the same thing over and over again.	doubt
Okey.	Restart/reset mental count
So that's one.	See(robots:1)

Participant's Utterances	*Coded*
That's two, three…….. four…….is that okey?	Rapid movement through rooms See(robots:??) infer(identity(robots)) report(intermediate-results)
That's because, ah I mean, I look at, I look at that room, and loo- just looking at the general lay out of the rooms…… ah…… this room doesn't extend all the way ..	Subject had difficulty vocalizing while navigating infer(map)
yeah.. so they do look like three different rooms	Infer(map) **
and, it does look like there are two robots	Report(intermediate-results)
. oh.. that one..Ah!! One?	See(robots:1) speculate(identity(robot))
.Oh-oh……. One, twooo…three?	Rapid movement through rooms See(robots:??) infer(identity(robots)) report(intermediate-results)
I'm go- I'm..trying to get an i- lay-out of the rooms	Infer(map)
and ah fi- and associate the robot with the room.	Strategy(robot location – room location only)
… hah okey…fi ……. Okey.	Subject had difficulty vocalizing while navigating
I'm guessing that there are three rooms, this one and this white room.	Infer(map) **
That should be two over here. ..	Expect(see(robots:2))
it's three.	Report(intermediate-results)
There should be a white one in here.	Expect(see(robots:1)) Expect(perceptual-props(robot))
Suddenly it seems like it's turned red.	Fail(Expect(perceptual-props(robot))) infer(identity(robot))??
……. So there's one.	See(robots:1)
I'm associating the room with the robot.	Strategy(robots tied to room locations)
Okey? So there's one white one over here,	See(robots:1) perceptual-props(robot)
there's one red one over here……	See(robots:1) perceptual-props(robot)
white one, red one.	See(robots:) perceptual-props(robots)
So two rooms over here. And there are two rooms over there.	Infer(map)
So, one, two…. Three, four…	Rapid movement and searching and seeing of robots infer(identity(robots))

Participant's Utterances	*Coded*
and there should be a red one.	Expect(see(robots:1)) expect(perceptual-props(robot))
. Two?	
Okey. There are five robots.	Report(results)

_____

[experimenter asks for retrospective –strategy]

Okey. First ah… first figuring out how many rooms there are because I wanted to make sure, because all these rooms are interconnected and I'm going between them. I want to make sure I'm not going back to the same room. So, get a lay-out of the rooms. Initially, I thought that there were three rooms that's why I was confused. Then, it become obvious that there were four rooms and, you know, you distinguished the rooms by going to these…I, looking at the perspective and you know, the color of the rooms and all that, and then associating what is in each room - a robot with each room - and the fact that they are, the fact that they are colored different helps. You can associate the multi-colored robot with this over-all white rooms annd and to the left of that, you have this room where there are..ah, where there is one robot and, you know, just standing over here and looking around is the best perspective because you see one room here, one room there, one room there and one room there. You confirm that by going somewhere else and, you know, you confirm your perspective by looking at it from another angle and make sure that that's what it is. And … and so a room with a robot and the angle, you know. That.. pretty much was it.

Subject 49

Task 5

Participant's Utterances	*Coded*
Allright,	Begin-task
I'm just looking about the room,	Search(current-room)
I see one of the robots.	See(robots:1) infer(# of robots > 1)
<silent navigation> . I'm just seeing if there are any more out here,	Search(current-room)
but, I don't see them.	See(additional-robots:0)
<silent navigation> allright. I think this robot's gonna enter this room	Speculate(Action(robot, move(current-room, adjacent-Room))
so I better check out what's already inside.	Plan(see(objects):loc(adjacentRoom):time(now)) [Move(adjacent-room)]
There are two robots out here.	See(robots:2):loc(second-room)
<silent navigation> oh, where's this guy gone.	Search-for(first robot)

Participant's Utterances	*Coded*
OK there are three.	Infer(different(first-bot seen-bots)) Report(intermediate-results)
<silent navigation>	Move(adjacent-room)
this is the forth guy out here.	See(robots:1):loc(current-room) Infer(different(seen-bot, prev-bots))
[wispers] try it. <silent navigation> <experimenter prompts subject>	Subject has difficulty vocalizing while navigating
[normal voice] yeah yeah, actually it lo- since the robots are moving, you know just int- entering an independent room wo- would not give me an idea of how many robots were actually there.	Potential problem(robots moving) Individual room counts not conclusive.
But going back to the rooms which I came through, I can determine how much there were before, and which new robot has come in. So that would give me a better approximation.	Strategy(persistence of objects) Recheck – numbers should match up plan(infer(identity(newly arrived robots)))
So this guy remains here,	See(robots:1):loc(current-room):time(now):time (past) Infer(identity(robot))
and I came t- I came through this room,	Move(adjacentRoom) Infer(identity(current-Room))
and there are two robots out here,	See(robots:2)loc(current-room)
oh there are three,	ReEvaluate(See(robots:3):loc(current-room)
there was one before.	Recall(See(robots:1):loc(current-room):time(past))
So that makes it four.	Infer(identity(robots)) report(intermediate-results)
And this is the room which I didn't see before.	Move(adjacent-room) Infer(identity(current-room))
So, oh so I guess there are four robots.	Infer(all-robots-seen) report(intermediate-results)
I'll justttt make sure.	Plan(recheck)
...	Move(adjacent-room)
OK this guy remains here.	See(robots:1):loc(current-room) infer(identity(robot))
<silent navigation>	[rapid movement through rooms]
allright. oppssssss, <chuckle> crashed into that one.	Navigational-difficualties
.... ok so two. .... three four,	See(robots) Infer(identity(robots))
yup, oh there are three in this room,	See(robots:3):loc(current-room)
so I better,... make a search.	Plan(search(all-rooms))
Yeah, I guess there are four room,	Infer(map)

Participant's Utterances	*Coded*
four robots yeah, there are four robots.	Report(intermediate-results)
<subject is still silently navigating, experimenter reminds subject that when subject is done and giving an answer to stop - else please vocalize> ok, just making it double sure.	recheck
I'm jusssst, trying to move through the rooms as fast s possible.	Move(all rooms) fast Strategy(move faster than robots)
Oh there are threeeeee.	See(robots:3)
... ok I'll jussst... wait here to see what's happening.	Plan(watch robot movement)
Ok I can see three, four.	See(robots:4)
So whats in this room.	Move(room) Search(current-room)
Its nothing.	See(robots:0)
There should be one out here.	Expect(robot: adjacent-room) move(adjacent-room)
oh yes there is,	See(robots:1)loc(current-room)
so there are four.	Infer(identity(robot)) Report(intermediate-results)
<silent navigation> yup there are four. There are four robots. <subject continues to navigate - experimenter reminds subject that if subject is done - then stop navigating>	Report-results)

<retrospective>

all right, what I did was, the room in which I began, the robot which you saw, I knew that this robot's moving out here, so I went to the next room, I saw the enxt two robots. So by now I knew that the robots are moving. Two are in this room, one's in the previous room through which I came, so, moving into the next room, and you know, I don't know if that would have been the new robot over there, so I just went back to see, whether the room from which I came, how many ro- more robots are there. S- because I already knew there was one robot already inside. So when I went in so I saw two of them. So thats how I was approximating, I was tracing my path again and again to see whether, there are any changes to the things which I already saw. Because I- ah, the, since the robots were moving, it would be like if I'm looking at on- if I'm moving into one room, and this robot's back there, and maybe it has ro- moved to some other room or something. When I go back I can find out, ok, this robot has gone over there. There are two robots out here. There was a robot I saw back, back in that room. But when I go back it's, gone to some other room. That what I was trying to, do.

<you said th one is this room has gone over there, how did you get a feel for that when the robots looked all alike?>

ummm actually I was trying to guess, where the robots would be based on their motions. When I saw a

robot moving close to a door, and when I went to a- some other room, I anticipated that that robot could possibly move out of the room into some other room. Since there are more than one entrances to the room. So what I did was I went back to the room to see if that, robot is still there. And uh, if you are talking of identifying the robots individually, thats what, not what I was trying to do. What I was trying to do was, trying to guess by the motions, if, thats ac- yeah thats what I was trying to do. I never even thought of recognizing the robot by how it looked. because, for me, if these robots were stationary or something, then obviously that would have been a criteria, but since everyone of them is moving, so, no sense see, that robot's going to that room, so when it was out here, I anticipated that it would, it could possibly go back to some other room and if I go through that way and come through that room. I might be possible seeing the r- the same robot who has, entered from some other direction. So I traced my route back to see if that robot is still there. so that's what I did, but I missed the fifth one, aagghh, thats disappointing. <chuckle>

Subject 54

Task 5

Participant's Utterances	***Coded***
So I'm in a room.	Note(surroundings)
There is one robot.	See(robots:1)
it doesn't seem to leave this room.	Infer(robot-movement) Strategy(understand robot movement)
Ok so there is one robot one robot outside,	See(robots:1):loc(adjacent-room)
two, robots.	Infer(robots in different locations are different) report(intermediate results)
Ok there is another room, let me see. no no.	Move(adjacentRoom)
OK in another room there is one more robot	See(robots:1):loc(adjacentRoom) Infer(different seen-bot, prev-bots) Infer(robots in different locations are different)
which is.. blue,	Note perceptual-props(robot:loc(adjacent-room))
ok this one was red.	Note perceptual-props(robot:loc(current-room))
OK so we have a blue a red one,	Report(intermediate-results)
and we go back to see what kind of robot was the other one.	Move(adjacent-room[original]) Plan(note perceptual-props(robot))
's one is aaaaa darker. It'ssss black.	note perceptual-props(robot)
Ok, lets say this's black.	Label(robot)
ok, oops this is the red one again.	See(robots:1):loc(currentRoom) note(perceptual-props(robot)) infer(identity(robot))
Why he's moving around in the rooms.	Understand robot-movement
I hope he's the same one,	Speculate(identity(robot))
so we have three so far.	Report(intermediate-results)
.. ok .. ohh I don't know. ...	doubt

Participant's Utterances	*Coded*
I saw... hmmm. .... I looked,	Doubt about perceptual-props of robot
yeah, let me look back to this guy to see what color he is.	Plan find robot, check robots perceptual-props
To see if this guy is the same color with this guy.	Rationale:compare perceptual-props
... huh. They are kind of the same color.	Perceptually indistinguishable
So until now I think I have four.	Report(intermediate-results)
.... How 'bout this one. This one.	Consider(identity(robot))
oh I have seen this one before.	Infer(identity(robot))
So I have four. ..	Report(intermediate-results)
let me see if this guy,	Consider(identity(robot))
the red one.	Infer(identity(robot)) [imply single red one] note perceptual-props
oh there are two red ones. ok. .. so we have two red ones.	ReEvaluate Infer(identity(new-robot)) Infer(two robots that are PIO
Three. Four.	Move(rooms) See(robots??)) Report(intermediate-results)
Where is it?	search
Four. .. five. There are five robots. ok.	Move(rooms) See(robots??)) Report(intermediate-results)
The idea is that uh that there is a very small number of rooms, so you can go fast and uh they, they cannot leave the room and you can count them very fast.	Report (strategy)
If there would have been a more uh larger number of rooms then it would have been diff- more difficult,	Report(limitation of strategy)
I think there are five. Five robots.	Report results

<retrospective>

So my initial uh idea was to look, I thought it's one robot with one color. .. but that was not the case, so then I went fast to see. So they do not leave the, do not have time to leave the rooms. But that was the advantage of having uh small number of rooms.

<one you saw a red robot in a room - and then saw another one in another room and thought it was the same on at first>

then I went back to see if there are actually two. that confused me. Initially, was I went, I thought that, one color

each robot. but, when I saw two in two different rooms, it confused me, so I went back to see if, if the other one didn't travel to this room. And it was in a different room.

Subject 57

Task 5

Participant's Utterances	***Coded***
yeah I'm just going through the room,	Search(current-room)
I find one robot,	See(robots:1)
I'm counting one on, my fingers.	Note tracking method for count
<silent navigation> <experimenter prompts subject>	Subject has trouble vocalizing while navigating. Subject is rapidly moving and searching from room to room
two.	See (robots:1) infer(different seen-bot, prev-bot) report(intermediate-results)
<silent navigation> three four,	See (robots:2) infer(different seen-bots, prev-bots) report(intermediate-results)
I've gone two three rooms so far.	Report movements
Uh I've counted this I guess.	Infer(identity(robot))
Four robots so far.	report(intermediate-results)
<silent navigation> <experimenter prompts subject>	Subject has trouble vocalizing while navigating.
I'm just going through one room I think I've not gone to.	Moving(in room) infer(identity(room))
There are totally three rooms, and four robots. <silent navigation> yeah non hidden under the table? yeah no.	Report(results)

<retrospective>

ah I decided uh to take the nearest uh door, and go clockwise all the way. And once I felt that I have uh, I am through with all the rooms, then I just uh made a turn around and uh I made a count of uh, there's one, room that had a chair, a table and uh one with a lighter colored walls, so yeah lighter colored floor I mean, so I knew that I had gone through that room earlier.

<how many room did you say there were?>

I guess three. and I should have gone anti clockwise all over once again, but uh I didn't because like uh

I was probably counting the robots giving more attention to how many robots were,..

<so your strategy included moving counter-clockwise?>

yeah and because they were moving I thought I should move as fast as I could before they uh uh come back to one particular room that I've already c- though I've uh gone through.

Subject 63

Task 5

Participant's Utterances	***Coded***
Allright,	Begin-task
I have to find. The total number of robots in the room in like, the least amount of time.	Describe-task
So this is my starting point.	Label(current-room)
We have one, two.	See(robots:2)
If they are all different colors like this it would certainly make it easier.	Perceptual-props(robots) perceptual differences make counting easier [subject is changing rooms while talking]
That's four.	See(robots:2) infer(different seen-bots, prev-bots) report(intermediate-results)
<silent navigation>	Subject has trouble vocalizing while navigating.
possibly five,	Speculate(identity(robot))
If, I could just check here.	Plan (confirm identity(robot))
No, that would still be four.	Infer(identity(robot)) report(intermediate-results)
<silent navigation>. <experimenter prompts subject>	Subject has trouble vocalizing while navigating.
Allright, soooo, double checking each room	Recheck(all rooms)
to make sure t- at each point in time I know how many they- robots are in each room,	Strategy(find robots at current-time) Strategy(robot positions function of time)
notice just one, in this one.	See(robots:1):loc(current-room)
There should be three here	[subject moves to adjacent-room] expect(see(robots:3):loc(current-room)
there should be three here but there's two,	See(robots:2):loc(current-room) fail-expectation
<silent navigation>,	[subject moves to an adjacent room]
there's four, so that keeps a total of four,	See(robots:1)loc(current-room) infer(different(seen-bot, prev-bots) report(intermediate-results)

Participant's Utterances	*Coded*
yet there's still one colored robot that I can't account for	Expect(additional robot) strategy(persistence of objects) perceptual-properties of objects
unless it changes color as it enters a room.	Speculate(possible explanation)
Which I suppose <undecipherable> keep following him I should be able to find out.	Strategy(follow robot to verify explanation)
Lets see, no, well not anytime soon in any case.	Abandon strategy
So that should be one, thats two, ... that four.	Rapid navigation and counting and seeing of robots.
My first count was four, now I'm thinking five,	Persistence-of-objects
but. I would say five.	Report(results)

<retrospetive>

uh, .. I assumed all the robots would be the same color and indistinguishable, so when I got to the second room and discovered they weren't, um that made things a little different 'cause then, I had to worry about whether the colors changed as they entered a different room, or were the colors, you know, static. Well there were, so, it got a little confusing, because I think there was only two colored ones compared to three, the regular black and white ones, and I wasn't sire if I was double counting it, so, in each room I would, walk in and out as quick as possible in a straight line, stand in the center, take a quick survey, and jump to the next room as quick as I could, while at the same time trying to go faster than the speed of the robots, so I should be able to get there first, and.. yeah.

<so you were trying to go faster than the robots, and then, so as to..>

um while I would enter each room I could also like keep and I on like where they were at that point, now if they were at the far corner of the room, I knew that by the time that they would get to the door, get to the other room, I would already be there, so I wouldn't be double counting them. So in each case I would walk straight lines out of the room so that I wouldn't like, slow down to take a turn, or you know, bang into a wall. And uh, I think that would be it yeah, straight lines.

Subject 65

Task 5

Participant's Utterances	*Coded*
<silent navigation> <experimenter prompts subject>	Subject has a hard time vocalizing while navigating
ok were, one with the white.	See(robot:1) note(perceptual-props(robot))

Participant's Utterances	*Coded*
<silent navigation> <experimenter prompts subject>	Subject has a hard time vocalizing while navigating
yeah I looked around the room because, to searchhhh more robots.	Search(current-room)
There's another one.	See(robots:1) infer(different,robot, prev-bots)
I saw three in all till now.	Report(intermediate(results))
There's one with the orange and the yellowish tinge.	Note(perceptual-props robots)
I again turn around to look if there are any more robots.	Search(current-room)
<silent navigation> <experimenter prompts subject>	Subject has a hard time vocalizing while navigating
yeah, uh, this guy kind of looks similar, to the, one I saw in the first room.	Note(perceptual-props robots) infer(identity(robot))
there are two, two more of them.	See(robots:2) infer(identity(robot))
So in all there are five.	Report(intermediate(results))
This is same room I came to, uh, ah the s- the room which I, already saw when I was in the previous room.	Infer(identity(room))
.. so I think, yeah I was here area- before.	Infer(map) Infer(identity(room))
So I think there are around five robots: three white, two yellow,	Report(intermediate-results)
this one is easily identifiable because of the desk. I saw the desk before.	Infer(identity(currentRoom)
Leaving this room.	Move(adjacentRoom)
<silent navigation> <experimenter prompts subject>	Subject has a hard time vocalizing while navigating
uh ok, the- there was a, yellow robot in this room but I guess it's gone now.	Recall(see(robots:1)loc(currentRoom):time(past))
<silent navigation> <experimenter prompts subject>	Subject has a hard time vocalizing while navigating
ok, yeah I'm in the next room, there's again a table with two robots.	[Move(adjacentRoom)] infer(identity(current-room)) See(robots:2):loc(currentRoom)
I guess these robots are here in this room only.	
<silent navigation>	
Ok so there are two of the red ones.	Perceptual-props(robots) See(robots:2)
I can see them, .. easily.	Strategy(concurrently-viewed robots different)

Participant's Utterances	*Coded*
So there are three white robots, two yellow ones, in all.	Report(intermediate(results)
Three in this room, one in this room. and one in the, ... one this room, I guess.	Move rapidly through rooms see(robots) infer(robots seen in quick succession in different locations will be different.
There are only three rooms I can travel.	Infer(map) **
There are two rooms with, a table each, and the third room which does not have any table.	Report(map) **
This is the room I guess, which does not have any table.	Infer(identity(current-room))
<silent navigation> These guys are always found in pairs.	Infer(external property of robots) **??
<silent navigation> Ok <silent navigation>..<experimenter prompts subject>	Subject has a hard time vocalizing while navigating
ok yup, uhhh I'm just scanning through the room to see if a- there are any more robots.	Search(currentRoom)
Am I being, uh, kind of puzzled by the color of the wall,	Doubt rationale(perceptual-props of room)
but I guess yeah I've confirmed there are around five robots, three whites, and two, yellow ones. That's it.	Report(results)

<retrospective>

Uh the basic strategy was, I was, looking out for distinguishable objects in the room, which- which was easily, identify one room from another. Uh, then I was looking out for pairs, like you know the other one, the two white robots were always found in pairs. And then I could easily see from, you know kindof, from this room, you can easily, see robots in the other rooms. So, so it was easily identifiable. Uh you know, right now I can't see any robots in this room, but like, you know, if I, if I be in this room here like this, I can see, there are one robot in this room and, couple of them there.

<so you looked for uh..>

yeah, I'm trying to basically, look through the rooms. And look for distinguishing objects in the room, and definitely the color of the robots. See like, you know there are, I can see two yellow robots right now. So i-it was easy, you know, initially it was confusing, like you know whether there is one yellow robot or whether there are two yellow robots, but that made my confusion, uh very straight. I was not confused now because I just saw both of them in the frame. Annnd yeah again, the same tr- strategy: there are three of them. So, three white robots, and two yellow ones. And definitely the, the surroundings with the room, they helped alot.

<but you could only see so many of the robots at one time; You would have to eventually go into

another room, so how did you decided that those were not the same robot->

basically there, the the geometry of the rooms also like you know, quite useful. Like uhhhh if I was here, if I was here. This room, you know, for a robot who was in this room, its not easy to, go in that room. There's no way to go in that room. There is a way but,... uh, ... ok I guess [subject is trying to make a point by navigating the rooms while talking] ...I guess basically ma-maintaining a, you know looking at the geometry of the room. If-if if I come in a position lie, this where I can get the maximum vision, of the rooms all th three rooms. I can easily identify.

Task 6 Codes

Task 6 transcript codes begin here

Subject 39

Task 6

Participant's Utterances	***Coded***
So I'm following the robot,	Follow(focus-bot)
<silent navigation> oh, I'm seeing, like more than one robot?	See(focus-bot) See(PIO distractor)
<silent navigation>, and I'm following him.	Infer(identity(focus-bot)) ** Follow(followed-bot)
<silent navigation>, aww, <chuckle> <silent navigation>	Subject has difficulty vocalizing
<experimenter stops subject - subject has been following the robot that stays in the classroom as the robot moves back and forth in front of the whiteboard.	

<retrospective>

Yeah first of all I saw a robot, and I uh, as he took the left turn I saw other robot on the front of mine. So I thought, I can follow any of the robot, so I started following him.

Subject 40

Task 6

Participant's Utterances	***Coded***
yeah, ok	Begin-task

Participant's Utterances	*Coded*
there are certain chairs here, in here.	See(distractors/perceptual-props(room)
and I follow two robos. Both look nearly the same actually.	See(focus-bot) See(PIO distractor) Follow(focus-bot & PIO distractor)
Do I have to count the number of chairs? as such? <experimenter replies negative> no need?	Query(experimenter)
oh, ok. oh. Its difficult to find which one, both look nearly the same.	Doubt:focus-bot & distractor are PIO
... must be the other one.	Infer(identity(focus-bot))
<silent navigation>.. <experimenter prompts subject> yeah I have- trying to find out which one is the right one.	Speculate(identity(focus-bot))
here. I think this - the, one behind.	Infer(identity(focus-bot))
Where's it gone?	Lose(focus-bot)
yeah this is the one I think so.	Infer(identity(focus-bot))
I'm just following it into the next room.	Follow(focus-bot)
And another robot, the similar kind, appears	See(PIO distractor)
in this computer room eh?	Label(room)
<silent navigation>... its gonna come through here,	Anticipate(focus-bot movement)
ok, it, it goes down the lane,	Fail(Anticipate(focus-bot movement))
I'm, I'm still following it.	Follow(focus-bot)
Trying to keep up with it.	Plan(keep focus-bot close)
This is the only robot that I have in sight	See(focus-bot only)
with, and I follow outside the computer room I think,	Anticipate(focus-bot movement)' Follow(focus-bot)
yeah.	Correct(Anticipate)
Ok, I'm down the lane,	Move()
and there's one more robo.	See(PIO distractor)
.... I th- I think I'm moving a bit faster than, the other thing here	Infer(mobility PIO distractor) **
<chuckle> 'k and what does this look like, I have no idea.	Fail(label(room))
It looks like a- a refreshment room.	Label(room)
And there's a... a Pepsi Machine there.	See(distractors/perceptual-props(room)
..... ok he again goes down the lane.	Report(focus-bot movement)
And there's two of them here now, one ahead of me, and one following me	See(focus-bot) See(PIO distractor)
..... where does this go?	Query()
there's a dead end coming up I think so.	See(perceptual-props(room))
Ok He's able to distinguish the obstacle I think.	Ascribe(intention, focus-bot)
And it moves again back into the computer room.	Report(focus-bot movement) infer(identity(room))
<silent navigation>.. I still can't understand what the objective of this .. agent is as such.	Fail(Ascribe(intention, focus-bot))

Participant's Utterances	*Coded*
It just takes me around. <silent navigation>..	Report(focus-bot movement)
I'm just moving around following it, nothing much.	Follow(focus-bot)
<silent navigation> And the movement of the robo, I feel is pretty good as its able to distinguish the obstacle it has- that means the walls around.	Ascribe(intention focus-bot)
Compared to me where, and I crash into most of them.	Evaluate(self)
Thats it.	End task

,
<retrospective>

no the thing was, I kept my eyes on the robo and I was able to distinguish really between this one, because I kept on following it. So I had an idea that this was the one that was moving around.

<when in same room with another robot - how did you decide on this one?>

Ummm tough question. It was really a guess probably. I guessed. Thats what I did.

<experimenter asks another inaudible question>

The basic thing which distinguished both of them was. this was moving a bit faster than the other one I feel. It had more movement. The other one was just moving inside the room and uh, like it was not, the movement was not fast and was just - ah what should I say? horizontal and a vertical movement. And this was, going around trying to seek out for something, So I was- thought probably, maybe this was trying to investigate something, and this, made me follow this one.

<experimenter reminds subject of a time when there were two robots in the room by the time subject got into the room - why did subject choose the one subject chose?>

I think i ha- Because I think I saw it when I entered the room, I think I saw this robo, going this way around the other robo so I thought probably the farther one must have been the one, I was following.

Subject 41

Task 6

Participant's Utterances	*Coded*
Ok,	Begin-task
I'm following the robot,	Follow(focus-bot)
I, turned left into the room.	Move(adjacent-room)
I see another robot,	See(PIO distractor)
Ah lots of chairs in the room.	See(distractor/perceptual-props(room))
I'm still following the robot.	Follow(focus-bot)
He turns right into another room.	Report(focus-bot movement)

Participant's Utterances	*Coded*
There are chairs, a table, board,	See(distractor/perceptual-props(room))
the f- robot I'm following seems to've kindof follow another robot...	Strategy(understand focus-bot movement)
that doesn't seem ... that anyway.	Subject is thinking too hard to vocalize
Turning back again. <silent navigation>	Move()
and ah I see another robot,	See(PIO distractor)
but I'm not too sure whether it was the one that came before in the earlier room.	Speculate(Identity(PIO distractor))
<silent navigation> Ok what I see is. Lab, kindof lab,	Label(next room)
entry into lab	Move(adjacent-room)
with lots of terminals.	
<silent navigation> There are more robots.	See(PIO distractor)
<silent navigation> I'm still following the robot, through the computer room.	Follow(focus-bot)
<silent navigation> I'm, Ah turned right into the hallway again.	Move(adjacent-room) Infer(identity(room))
I'm still following the robot out of the computer room.	
And uh I'm f- turning right, left into another room.	Move(adjacent-room)
There's a table, vending machine,	See(distractor/perceptual-props(room))
the robot seems to be moving around.	Strategy(understand focus-bot movement)
There comes another robot.	See(PIO distractor)
I think I'm still following the right robot.	Speculate(identity(focus-bot))
He's moved out of that room with the vending machine.	Report(focus-bot movement)
And the other robot seems to go after him.	Report(PIO distractor movement)
I'm in the hallway again.	Report(location) Infer(identity(room))
The robot's turning back into the computer room.	Report(focus-bot movement)
Through another door, but. Not the one, through which, I exited the room.	Infer(map)
<silent navigation> Still following the robot.	Follow(focus-bot)
There's one more robot in the computer room. In fact, two more.	See(PIO distractors)
<silent navigation> The robot seems to be moving out of the room, through the door, which we first came in through.	Anticipate(focus-bot movement) Infer(map)
<silent navigation> I'm entering another room with the table,..	Move(adjacent-room)
and I don't know whats on top of it.	Speculate(distractor)
We're exiting the room back into the hallway. <silent navigation>	Both-move(adjacent-room)

<retrospective>

Ah, I was just waiting to see where the robot was going, um, its motion was not kindof smooth, but it was jerky so it was moving, stopping, moving stopping, and uh It's uh, direction of motions like when it was turning, uh was kindof abrupt. So left to right, right to left, straight were abrupt transitions. So I had to wait to see where the robot was going before I could actually follow him, Now Ok, basically when it was moving straight it wasn't tht difficult.

<several other robots in the rooms, how did you make sure you were following the this one?>

Ah you basically have to keep your sight on the robot. When the robots cross you just have to see that thats the robot you were following. Its a kindof perception thing that you, gotta keep sight of the thing that you are following and you kindof keep hold to it, in spite of many similar things that are moving around in the room.

<at the beginning, you looked around at the chairs, and you looked away from both robots but you chose one - how?>

Um, thats kind of anticipation of movement, like the robot was moving in a straight line. The other was moving through across the room in another direction. So its kindof anticipation of movement like, uh and you, I kind of anticipated that this robot was mov
- was not the one that I was following. So it was their basic relative ah position of the robots that made it easier for me to distinguish which robot I was following.

SUBJECT NO. 42

Task No. 6

Participant's Utterances	***Coded***
He's gone fast.	Report(focus-bot movement)
Ahhhhh….. I can't catch up with you.	Report difficulty
Where are you goin'?	Query(focus-bot)
He came up that way.	See(PIO distractor) Report(PIO distractor movement) **This PIO distractor will be Followed-bot for this transcript**
How did he come up that way?	Expectation violated
I can't catch up with him. He's going too fast.	Doubt/hindrance
(chuckles) ahhhh okey. That's how you do it. Okey okey. Okey okey.	Understand(controls)
That way we can pass her. Go turn to look. ….	Move()
Now I'm goin' good……	Comment
well, I pressed the wrong button.	Navigational-hindrance

Participant's Utterances	***Coded***
Huh.. follow her left	Follow(focus-bot)
ahhhhh….. ahh, I can't get in there *[experimenter says something and the subject giggles]*	Navigational-hindrance
Okey. Where did he go?	Query(self)
He must have went out the door.	Strategy(infer(followed-bot path)
I don't know where he went.	doubt
….. (giggles some more) maybe he went that way.	Guess(followed-bot location)
Now I got to go forward, I think.	Plan(go in hypothesized bot direction)
I don't know where he went.	doubt
Where did the guy go?	Query(self)
Where did you go? ……	Query(followed-bot)
here we are.. heeeeere we go.	See(PIO distractor)
Okey. He's going this way.	Report(followed-bot movement)
That means I gotta go backwards.	Plan(move(backwards))
Okey. …….No, I am doing right 'coz I'm going back behind him or should I turn around and get in- so I'll turn around.	Plan(follow(followed-bot))
Ah, this is okey? Okey *[experimenter prompts subject]* Sure.	Subject has difficulty vocalizing while navigating
He's going. okey okey. Okey. He's going back out (?).	Report(followed-bot movement)
I'll turn this way. Okey…..okey.	Move()
Here we go.. Now I go. Okey.Here we go.	Both-move()
Oh, I'm gonna miss him.	Worry
Hah?….can't get in there!	Navigational-hindrance
I'll catch yah.	Speak to (followed-bot)
There's two of them!	See(followed-bot) See(PIO distractor)
Now he's coming back.	Report(followed-bot movement)
I can go back. I'll catch this one …….. ok!	Follow(followed-bot)
…. Will I just follow just one of them?	Query(?)
(giggles) …. I follow that one.	Infer(identity(followed-bot))
I think this is the right one…… alright……..there we go.	Speculate(identity(followed-bot))
Okey. *[experimenter stops experiment] it* wasn't it the right one? (giggles)	Finish-task

[strategy]

amm, I just tried not to go ahead of him and just keep right behind him and had to turn the right and left buttons and the up and down the right way and getting to the room somehow. Then you know, when he turned into the room, I just try and get the buttons right. You know, doing it right on the buttons and everything and not to get ahead of him. And then I lost him one of those times. And I don't know, I lost him.

[experimenter makes some comments-there was a time you saw two of them you had to choose between

them] well, I chose the first one that I saw 'coz there was one that came out first and I thought that must be the right one. I started following him but the other one came out. But I assumed the first one was the right one 'coz he is the one I started to follow when he came when I saw him first. So I started following him, so I assumed he must be the right one. And he looked like the right one, for a moment you know. So I thought he must be the right one.

[experimenter points out another choice point]
Well,see what happened was, um when I saw this one, he came out first I thought, then I started following him then the other one came out right after, and I thought the first one that I got must be the right one I thought and then I th- because it looked right when I saw him and everything and then I because I didn't look very closely because I didn't see it was identical. 'cause I had my eyes on this one. I just kept following the one that came out first because I didn't look at the other one closely and I thought he must be different I thought. 'cause when I saw this one was the same I thought the other one must be different then I thought And you said the other one was the same you tell me now. And I didn't look at the other one at all, I just kept my eyes on this one.

[when you first started out your robot turned left then another one came from the right]
Well, I said, how did he come out of the thing like that when he went in there. What was it a different one that came out or something? Was that what it was? *[experimentor affirms]* oooh I said how could he get in there from on the other side I said. I didn't know there was two of them. So that how I…..

[experimentor: because you didn't know there was two of them?]
right, I assumed it must've went around somehow and got, s- over there somehow. I didn't know how <chuckle> I thought maybe it went back there and went all the way around or something, I don't know. I, it went in here or something, I thought maybe it went way in back and went all the way around or something or somehow it got over there.

Subject 43

Task 6

Participant's Utterances	***Coded***
'K	Begin-task
so I'm following the robot.	Follow(focus-bot)
up the corridor, ok he made a left into the first room.	
<sigh> ok, trying to follow this robot,	Follow(focus-bot)
I see a second robot, so if-,	See(PIO distractor)
following this, first robot, and the second robot,	Follow(Focus-bot & PIO distractor)
into the second room.	Label(room)
I see some chairs and a desk.	See(distractors/perceptual-props(room))
It must be like a, teaching facility.	Label(room)
Ah! following the first robot,	Follow(focus-bot)
he's turned, and now he's going out, the doorway back into the hallway. And now he's going back down the hallway	Report(focus-bot movement) Label(room)

Participant's Utterances	*Coded*
towards where we first began.	Infer(map)
ah he just made a left into a third room.	Report(focus-bot movement) Label(room)
With blue walls.	See(perceptual-props(room))
Ther-There's another robot.	See(PIO distractor)
Ahh, appears to be moving-	Report(PIO distractor movement)
oop! ok, following the robot, first robot,	Follow(focus-bot)
around the table, I see a filing cabinet and a poster on the- the wall.	See(distractors/perceptual-props(room))
Um .... oop. Ok following the robot through the doorway	Follow(focus-bot)
into a computer room.	Label(room)
OK, the first robot and another robo to in this room,	See(Focus-bot) See(PIO distractor)
crossed.	Report(PIO distractor and Focus-bot interaction)
I almost got confused.	doubt
Lets see, following him down the hallway. -	Follow(focus-bot)
down the computers.	See(distractors/perceptual-props(room))
um. <silent navigation> ok he just made a left.	Report(focus-bot movement)
.. and he appears to be going out, the doorway into the hallway.	Anticipate(focus-bot movement)
And he goes across the hallway. annnd just made a right down the hallway.	Report(focus-bot movement)
Where there's another robot. .. at the end.	See(PIO distractor)
<silent navigation> Ok now, the first robot just made the left, into a- another room	Report(focus-bot movement)
where there is- a Pepsi machine,	See(distractors/perceptual-props(room))
mmm now I'm thirsty.	comment
A stove and a table.	See(distractors/perceptual-props(room))
Crossing paths with another robot.	See(PIO distractor) Report(PIO distractor movement)
appears he's going through a, doorway.	Report(focus-bot movement)
I'm just going forward. turning and try and keep him in view.	Move() Strategy(object continually viewed is same object)
opp, what is th- tht second robot just got in my way.	See(PIO distractor) Navigational-hindrance(PIO distractor)
<silent navigation> opp. he just-	
the second robot keeps pushing me.	See(PIO distractor) Navigational-hindrance(PIO distractor)
ok. So I'm following the first robot down the hallway. into a corner.	Follow(focus-bot)
we just made a right into,	Both-move(adjacent-room)
the computer lab again.	Infer(identity(room))

Participant's Utterances	*Coded*
And now he made a right. around the tables. He's up against the wall. And he's going down the computer lab. <silent navigation>... <experimenter prompts subject>	Report(focus-bot movement)
ahh just ah following, the robot,	Follow(focus-bot)
try and keep an eye on him, ahm,	Strategy(object continually viewed is same object)
'cause that's what the task told me to do.	Rationale:task instructions
um. just going through the doorway.	Move(adjacent-room)
Try an' keep him in view.	Strategy(object continually viewed is same object)
ah before he almost blended in with the other robot, kinda confused me.	Report(PIO distractor and Focus-bot interaction)
ahm, now he's, going out, back into the hallway.	Report(focus-bot movement)
I'm turning left	Move()
and, and now he's stopped.	Report(focus-bot movement) End task

<retrospective>

ah just keeping him, in the screen shot, 'cause if I lost him in the screen shot, I probably would have confused him with the other robot.

<experimenter reminds subject that at the beginning of the task subject lost sight or target robot for a moment - how did subject choose which one to refocus on?>

Ah he was the closer one, and I knew he was moving, at a constant rate so he couldn't have just jumped over to the other side of the room. Plus I believe there, was probably a table in the way.

Subject 46

Task 6

Participant's Utterances	*Coded*
ok there's a robot in front of me	See(focus-bot)
so I'm following it down the hall.	Follow(focus-bot)
Its going left.	Report(focus-bot movement)
So I follow it left, into a room	Follow(focus-bot)
full of chairs	See(distractors/perceptual-props(room))
that also has another robot in it.	See(PIO-distractor)
That looks very similar.	Note(perceptual-props(PIO distractor))
And they're going the same way,	Report(Focus-bot movement) Report(PIO distractor movement)
but the one I'm following is in the rear right now.	Infer(identity(focus-bot))

Participant's Utterances	*Coded*
In another room full of chairs.	Report(location) See(distractors/perceptual-props(room))
Again with both robots.	See(focus-bot) & See(PIO distractor)
Ummm keeping my eye on the one I'm supposed to be following and pretty much ignoring the other one.	Strategy(attend to focus-bot)
It has exited the room.. and gone back out into the hallway.	Report(focus-bot movement)
I'm following it again,	Follow(focus-bot)
it's now, pointing at me.	Report(focus-bot movement/orientation)
Its turning into a room.	Report(focus-bot movement)
Again this room has something on the table	See(distractors/perceptual-props(room))
and another robot in it.	See(PIO distractor)
Ummm doing my best to ignore the other robot and just concentrate on the one I'm supposed to be following.	Strategy(attend to focus-bot and ignore PIO distractor)
Its going around the table..... and wandering towards the room	Report(focus-bot movement)
full of computers	See(distractors/perceptual-props(room))
that another robot just came out of.	See(PIO distractor)
And I think there's a third robot in here because I saw it. .. Yes, there is!	See(PIO distractor)
and it just went left while the one I'm following went right.	Report(PIO distractor movement) Report(focus-bot movement)
<silent navigation> I'm following it towards the end of the room,	Report(focus-bot movement)
past the computers. Which appear to be running... Windows.	Report(properties distractors/perceptual-props (room))
And its exiting this room. Going into a hallway. And then banking right,	Report(focus-bot movement)
so I'm following it,	Follow(focus-bot)
and it looks like we're going to pass,	Anticipate(focus-bot,PIO distractor movement)
nope,	Fail(Anticipate)
there's another robot down there but it's gone its own way.	See(PIO distractor)
Its turning into a room...	Report(focus-bot movement)
S- So I'm following it into a room	Follow(focus-bot)
that has a Pepsi machine and an oven in it.	See(distractors/perceptual-props(room))
And another robot just came in and is passing me on the left	See(PIO distractor) Report(PIO distractor movement)
as I follow this robot.	Follow(focus-bot)
<silent navigation> Its exited the room. Its going down the hall.	Report(focus-bot movement)

Participant's Utterances	*Coded*
And it looks like we are being followed by another robot,	See(PIO distractor) Report(PIO distractor movement)
but I'm not going to worry about that because I don't want to loose, .. the one I'm supposed to be following,	Strategy(ignore PIO distractor)
Even though its, really trying to bump me out of the way <chuckle>	Report(PIO distractor movement)
<silent navigation> It's going back into the room full of computers from the other end. ..	Report(focus-bot movement) See(distractors/perceptual-props(room)) Infer(identity(room))
backing right around the table. <silent navigation>..	Report(focus-bot movement)
Again there's another robot in this room, but it's quite far away.	See(PIO distractor)
But n- looks like its coming towards us.	Report(PIO distractor movement)
looks like our paths are going to intersect.	Anticipate(PIO distractor movement) Anticipate(focus-bot movement)
yup.	Correct(anticipation)
<silent navigation> And then my robot is exiting the room. umm heading in the same direction it was when it came in,	Report(focus-bot movement)
We've gone, back into a room with a radio or something on the table,	Report(location) See(distractors/perceptual-props(room)) Infer(identity(room))
um its going out the door to the right,	Report(focus-bot movement)
so I follow it. And I follow,	Follow(focus-bot)
it turns left, and stops.	Report(focus-bot movement)

<retrospective>

ahm to acknowledge the other robots but only, to the degree that I registered that thats what they were and that I shouldn't pay any more attention to them because I I started looking at them I was going to confuse myself, since they do all look the same and move very similarly.

<you looked away from your robot a couple of times - how did you decide on that robot when you looked back>

it's,.... both times that I kind of glanced away from it, when I looked a it. right before I looked away from it, it appeared to be moving in a straight line and I w- made sure to only look away very briefly because it- these robots seem to have, they can't just, you know they don't do instant turns. It takes them a little while to turn so It, I figured if I just, maintained my, same course and heading and you know, looked around real quickly when I looked back it would probably still be there and even if it was

turning, I'd still see it in the act of turning, sooo but I did, when I, when I looked away to look at the other robot I did almost confuse myself, ummm. but I guess just, I guess mentally I kind of a, had assigned them, I knew the other one was to the left and this one was to the right so when I looked back I knew that was still the case so that was what I went with.

Subject 47

Task 6

Participant's Utterances	***Coded***
Alright so I'm moving forward down the corridor;	Move(in room) Label(room)
I'm following the Dalek [transcribers note: the robots used in these experiments were a publicly available quake II model of a dalek from the old Dr. Who TV series. this subject refers to robots as daleks]	Follow(focus-bot)
I go in.	Move(adjacent-room)
I see another dalek	See(PIO distractor) Infer(identity(PIO distractor)
and I see a whole bunch of chairs, one-two-three-four-five-six-seven chairs.	See(distractors/perceptual-props(room))
I'm still following the main dalek.	Follow(focus-bot)
It is a little, difficult to distinguish which dalek is which,	Report(difficulty, identifying PIO)
I'm now in a room with a whiteboard, a table, one-two-three-four-five-six-seven-eight chairs,	See(distractors/perceptual-props(room))
I'm still, I hope I'm following the right dalek still.	Follow(focus-bot) doubt
OK, now we're uh in the hallway.	Report(location, both subject and focus-bot)
The dalek is moving in reverse.	Report(focus-bot movement / orientation)
I am following it.	Follow(focus-bot)
It is now going into another room	Report(focus-bot movement)
with another dalek,	See(PIO distractor)
a table, some sort of apparatus on the table. There is a, diagram on the wall.	See(distractors/perceptual-props(room))
Make sure I still have the right dalek,	See(focus-bot) Infer(identity(focus-bot))
There is a file cabinet which I did not see, coming into the room originally. And there is some sort of post-it note board.	See(distractors/perceptual-props(room))
I keep accidentally bumping into the dalek,	Navigational-hindrance(focus-bot)
but I still hopefully have the originally one.	Speculate(identity(focus-bot))

Participant's Utterances	*Coded*
I am now, ooh, I am now in a computer room here.	Report(location) Label(room)
Almost lost the dalek.	Nearly(lose(focus-bot))
It has some tables. so one table with, one-two computers on it. another table with one-two computers, one-two, two chairs, another one with two computers two chairs, and there looks like some stuff behind it	See(distractors/perceptual-props(room))
but I don't think I'm going to have time to explore it or else I'm going to lose the tour guide.	Self-instruction
I'm, looks like I'm doing alot of moving back and fourth to try to get the entire visual field in range. So I'm doing alot of, move forward a little bit and move left and move right, to figure out whats in the scene.	Strategy(Search(current-room))
Now I'm in a room	Report(location)
with a Pepsi vending machine, looks like a stove, and a table.	See(distractors/perceptual-props(room))
Another dalek just entered the room.	See(PIO distractor) Infer(identity(PIO distractor)
<silent navigation> Still following the tour guide.	Follow(focus-bot)
I'm now in a room.	Report(location)
Well actually is it a room?	ReEvaluate
well it sort of looks like a room.	Label(current-room)
whoops, got more interference, just almost ran over another <silent navigation> dalek.	See(PIO distractor) Navigational-Hindrance(PIO distractor)
There was a corridor to my right.	See(Room)
Now I'm going into another room.	Move(adjacent-room)
Its back in, looks like it was the same or- ah computer room that we were in previously.	Infer(identity(room))
To my left and right there are two tables with two computers on-on each, one computer on each of the tables, and then a chair in front of each of the computers.	See(distractors/perceptual-props(room))
Still following the dalek.	Follow(focus-bot)
I'm passing the door that we exited from.	See(door) Infer(identity(door))
Still following.	Follow(focus-bot)
There actually is a couple of daleks in this room.	See(PIO distractors)
Just passed one who isn't my tour guide.	See(PIO distractor) Infer(identity(PIO distractor)
And there's one sort of stationary in the corner.	Report(movement PIO distractor)
Well, yup. <silent navigation> Gong back into the room,	Move(adjacent-room)

Participant's Utterances	*Coded*
believe this is the room with the apparatus on the table again.	Infer(identity(room))
Same objects are in here. It looks like nothing has changed.	See(distractors/perceptual-props(room))
Following the tour guide out of this room.	Follow(focus-bot)
Still doing alot of left to right motion to sort of figure out whats going on and..	Search(rooms)
thats it!	Finish-task

<retrospective>

Well the main one, the min one is this guy um, his motion was sort of, predictable after a while. After the first two rooms. I noticed that some of the other robots seemed to, move in the same paths and stuff, where this one's motion was distinctively different from the other ones. The orientation and some of the paths looked a little different. So even in a couple of spots where I got confused, um other than the one room where the one guy did come out with me, alot of them seemed localized in where they were going. Ahm this guy seemed to have a clearer strategy for what was going on.

<when you looked away and then looked back>

yes thats how I assumed I was still following the right one because, It it definitely, since I do play alot of video games. One of the things you always notice is to which ones are being controlled by some AI and which ones have pre-scripted paths. Well you can sort of get a feel for that, in a video game. Well you can sort of get a feel for that here as well. So...

Subject 48

Task 6

Participant's Utterances	*Coded*
ok,	Begin-task
I'm following the robot into a loo-room	Follow(focus-bot)
which moves to the left.	Report(focus-bot movement)
And uh, I hope I know which robot I'm following <silent navigation>	See(PIO distractor) See(focus-bot)
ok I just moved around the count the number of chairs,	See(distractors/perceptual-props(room))
but maybe I'll lose track of,.. the robot that I'm following so,	Worry/doubt?
one two three,- four-five -six-seven, seven chairs.	See(distractors/perceptual-props(room))
follow the robot? ok maybe its ahead of me.	Search-for(focus-bot)
uhoh maybe its gone.	Fail(see(focus-bot))

Participant's Utterances	*Coded*
Maybe if I, oooohkey, hopefully the robot, moved into this room.	Move(adjacent-room) Search-for(focus-bot)
<silent navigation> because that was the room, the second room on my pathway, that I had not visited. that the robot probably would n- had not visited. ...	[See(PIO distractor)] Strategy(expectations of tour guide)
and hopefully I'm following the right robot.	Infer(identity(PIO distractor as focus-bot))
Because, all the robots look the same.	Note(perceptual-props(robots))
I never made an effort to see if there's any distinguishing, <deep breath> aspect.... between this robot that I'm following and the ones in the room.....	Fail (Note(perceptual-props(robots))):PIO or PDO
I feel like going into the rooms and checking out whats there inside,	comment
but since my task is just to follow this robot, I'll do that. <silent navigation>	Self-instruction
oh, maybe its taking me into some room.	Anticipate(robot, movement)
Cool. <silent navigation>	comment
oh I can see a Pepsi, vending machine.	See(distractors/perceptual-props(room))
<silent navigation> yeah that was the one that I was following. <silent navigation> [transcribers note: subject is following the wrong robot, and has now crossed paths with the correct robot, but has dutifully followed the "adopted" robot, since subject believes it to be the right one.]	See(current PIO distractor) See(original focus-bot) Infer(identity(followed robot))
..... .<silent navigation continues>, <experimenters stops subject now that correct robot is long out of sight and nearly at its own endpoint.>	End task

<how did subject choose which robot to follow>

Well what I did was I assumed, that the robot that started off, went to the first room on the left, and then maybe its path, included the next room on the right, you know, maybe, I thought it was going to enter each of the rooms and take me- give a tour of the place, so when I came out of the first room, I came to the passageway and then I, assumed that it would hav gone in the, first room on the right, which It, which it did not visit. It went i- it went into the first room on the left. And then I thought, maybe it will go to first room on the right and then the second on the left and second on the right, so I went into the first room on the right, and uh, there I saw two robots again, so I got confused, and the one which was coming out, I followed that because I thought maybe the time that I wasted in the first room, this robot just, you know, got a tour of the second room and then came out. By that time I, I was entering so I assumed the robot that was coming out, was the robot that went in, like, long back. So then I started following that robot.

<when you saw the two robots in the room with the Pepsi machine, how did you choose which one

since I think you lost sight of the one you followed>

yeah, I lost sight of the robot that went into the room, but as soon as I enterest the room, there was a robot, far away, near the Pepsi machine, and there was was just, near the entrance. And I, and I knew that like, I hadn't, been, that uh, out of uh, whatever, sight of the robot that went in. So as soon as I entered. I mean it was just two or three seconds, that I couldn't see my robot, and then I, I knew that it had just entered the room. So the robot which was closer to me in the room, I assumed the on- that was the one that I was following. And the one which was far away near the pepsi vending machine was already inside.

Subject 49

Task 6

Participant's Utterances	***Coded***
I'm just following my robot,	
and trying to, approximate which of these, is mine by the... speed.	See(PIO distractor) See(focus-bot) Strategy(identify based on mobility and position)
Since I entered almost immediately, after the robot, I guess the one who is in front of me to be my robot.	Strategy(identify based on mobility and position and time lapse)
<silent navigation> so... ss I'm following where he's- this guy's taking me.	Follow(focus-bot)
What I'm trying to do is, keep the distance between myself and the robot to be the minimum so that, I can guess, where,	Strategy(follow closely) Strategy(object continually viewed is same object)
<silent navigation> .... <experimenter prompts subject> yeah I'm still in track of my robot,	Infer(identity(focus-bot)) Strategy(mentally track focus-bot)
so I'm plainly following him. Always keeping the distance between me and him as less as possible	Follow(focus-bot):closely
so that, I know,	Strategy(object continually viewed is same object)
<silent navigation> at least thats what I'm trying to do,	Hedge
and hopefully I'm still with the right robot <chuckle.>	Infer(identity(focus-bot)
So I'm just following him.	Follow(focus-bot)
Keeping him in m-my line of vision. So that I don't lose him.	Strategy(object continually viewed is same object)

Participant's Utterances	*Coded*
<silent navigation> Although... Still after him.	Follow(focus-bot)
I'm anticipating where he would go, so that,.... I'll always stay in close with him.	Strategy(anticipate(focus-bot movement))
<silent navigation> ... I'm hardly paying any attention to any of the other robots since,	See(PIO distractors) Ignore(PIO distractors)
specifically concentrating on this robot.	Strategy(mentally track focus-bot)
Oh, ... alright,	Doubt
he's still who I think he is <chuckle> <silent navigation>	Infer(identity(focus-bot))
so yes I'm following him. <silent navigation>	Follow(focus-bot)
... except for the first scene when he entered the first room, when I temporarily lost sight of him, since then I think I'm following the same robot,	Flashback Infer(identity(focus-bot))
but, the first scene, in which, I like missed him by a couple of seconds, its quite possible that some other guy m- might have crossed him and I might be following him.	Doubt Possible(fail(infer(identity(focus-bot)))
<silent navigation> but otherwise I'm pretty sure I'm following the right person.	Infer(identity(focus-bot))
There's nothing to distinguish, the- these robots from each other. Because, they look almost similar.	Note(PIO distractors are PI from focus-bot)
<silent navigation> so <silent navigation> I'm still following him.	Follow(focus-bot)
<silent navigation> he's taking me into so many rooms,	?
I know know, <chuckle>	End task

<retrospective>

I was keeping the distance between me and the robot such that, I knew he was going to jump into one of the rooms. So my effort was to keep the distance such that whenever he enters, I should be in a position to follow him instantly. Because I had already anticipated that there would be many look alikes in the room. Who will be moving possible close to each other. And I was sure that these two robots were going to cross paths or something immediately when they enter the room. So my effort was to... keep and eye on him just when he enters the room. I think that's the main thing in this entire thing, because if he moves in and you move after a couple of- after a time lag, you will find two robots exactly moving, you know in the rooms. So it's it's going to be difficult to you. Because they're perceptually I think they're indistin- in the, I didn't pay much attention to the other robots in the first place. But what I feel of this is that its not possible to distinguish, by something of their characteristics like, their sports or something, or maybe whatever is built into them but I guess that's the best strategy. That's what I used throughout the game. I never let him go out of my sight, uh except for the first scene, when he entered the first room. when I, when he, when he entered the first room. The the turn was too short for me so, it, it took some time before I entered the room. By that time, the clone had already crossed him so it took a bit of my judgment to think that, since this guy has just entered before me, he

would be at so much distance ahead of me. So that kept me from following the, other clone robot. Because when I went inside it is any body's guess who the real robot was. But, but knowing how much far I was from him when he entered the room. From that I could make out, which one of them could be my guide.

Subject 49

Task 6

Participant's Utterances	***Coded***
I'm just following my robot,	
and trying to, approximate which of these, is mine by the... speed.	See(PIO distractor) See(focus-bot) Strategy(identify based on mobility and position)
Since I entered almost immediately, after the robot, I guess the one who is in front of me to be my robot.	Strategy(identify based on mobility and position and time lapse)
<silent navigation> so... ss I'm following where he's- this guy's taking me.	Follow(focus-bot)
What I'm trying to do is, keep the distance between myself and the robot to be the minimum so that, I can guess, where,	Strategy(follow closely) Strategy(object continually viewed is same object)
<silent navigation> .... <experimenter prompts subject> yeah I'm still in track of my robot,	Infer(identity(focus-bot)) Strategy(mentally track focus-bot)
so I'm plainly following him. Always keeping the distance between me and him as less as possible	Follow(focus-bot):closely
so that, I know,	Strategy(object continually viewed is same object)
<silent navigation> at least thats what I'm trying to do,	Hedge
and hopefully I'm still with the right robot <chuckle.>	Infer(identity(focus-bot)
So I'm just following him.	Follow(focus-bot)
Keeping him in m-my line of vision. So that I don't lose him.	Strategy(object continually viewed is same object)
<silent navigation> Although... Still after him.	Follow(focus-bot)
I'm anticipating where he would go, so that,.... I'll always stay in close with him.	Strategy(anticipate(focus-bot movement))
<silent navigation> ... I'm hardly paying any attention to any of the other robots since,	See(PIO distractors) Ignore(PIO distractors)
specifically concentrating on this robot.	Strategy(mentally track focus-bot)
Oh, ... alright,	Doubt

Participant's Utterances	*Coded*
he's still who I think he is <chuckle> <silent navigation>	Infer(identity(focus-bot))
so yes I'm following him. <silent navigation>	Follow(focus-bot)
... except for the first scene when he entered the first room, when I temporarily lost sight of him, since then I think I'm following the same robot,	Flashback Infer(identity(focus-bot))
but, the first scene, in which, I like missed him by a couple of seconds, its quite possible that some other guy m- might have crossed him and I might be following him.	Doubt Possible(fail(infer(identity(focus-bot)))
<silent navigation> but otherwise I'm pretty sure I'm following the right person.	Infer(identity(focus-bot))
There's nothing to distinguish, the- these robots from each other. Because, they look almost similar.	Note(PIO distractors are PI from focus-bot)
<silent navigation> so <silent navigation> I'm still following him.	Follow(focus-bot)
<silent navigation> he's taking me into so many rooms,	?
I know know, <chuckle>	End task

<retrospective>

I was keeping the distance between me and the robot such that, I knew he was going to jump into one of the rooms. So my effort was to keep the distance such that whenever he enters, I should be in a position to follow him instantly. Because I had already anticipated that there would be many look alikes in the room. Who will be moving possible close to each other. And I was sure that these two robots were going to cross paths or something immediately when they enter the room. So my effort was to... keep and eye on him just when he enters the room. I think that's the main thing in this entire thing, because if he moves in and you move after a couple of- after a time lag, you will find two robots exactly moving, you know in the rooms. So it's it's going to be difficult to you. Because they're perceptually I think they're indistin- in the, I didn't pay much attention to the other robots in the first place. But what I feel of this is that its not possible to distinguish, by somehing of their characteristics like, their sports or something, or maybe whatever is built into them but I guess that's the best strategy. That's what I used throughout the game. I never let him go out of my sight, uh except for the first scene, when he entered the first room. when I, when he, when he entered the first room. The the turn was too short for me so, it, it took some time before I entered the room. By that time, the clone had already crossed him so it took a bit of my judgment to think that, since this guy has just entered before me, he would be at so much distance ahead of me. So that kept me from following the, other clone robot. Because when I went inside it is any body's guess who the real robot was. But, but knowing how much far I was from him when he entered the room. From that I could make out, which one of them could be my guide.

Subject 50

Task 6

Participant's Utterances	***Coded***
Ok,	Begin-task
I'm.... trying, to follow the robot.	Follow(focus-bot)
Ok, <giggle> and I lost which one I was following.	Lose(focus-bot) See(PIO distractor) See(focus-bot)
Of course. Ok. Catching up, maybe.	Follow(Focus-bot & PIO distractor)
Get back here.	Talk to Focus-bot & PIO distractor
Now the the fact that I don't know which one I'm supposed to be following, is that a problem?	Query(Self? Experimenter?)
<silent navigation> <experimenter prompts>	Subject has trouble vocalizing while thinking
ok, I'm just trying to keep track of... what I now believe is the robot that I'm supposed to be following.	Infer(identity(focus-bot)) Strategy(mentally track focus-bot)
Although that was kind of weird	Unexpected-occurrence
. Opps. <silent navigation> <experimenter prompts> oh sorry,	Subject has trouble vocalizing while thinking
I'm still following.. trying to make sure that I keep, him in sight.	Strategy(object continually viewed is same object)
<sigh> <silent navigation> really not focusing on anything else except,	Strategy(mentally track focus-bot)
following. <silent navigation>	Follow(focus-bot)
um kindof noticing other things, but,	See(?)
<silent navigation> trying to stay close enough so that I don't, lose track of which one he is again.	Follow(focus-bot):closely Strategy(mentally track focus-bot)
<silent navigation>	
noticing the Pepsi machine <chuckle> kinda stands out. ...	See(distractor/perceptual-props(room))
hey get back here.	Talk to Focus-bot
<silent navigation> now I know I wasn't following that one.	See(PIO distractor) Infer(identity(PIO distractor)
<silent navigation> oookey, where are we going?	Query(self? Focus-bot?)
still following. <silent navigation> I'm staying close	Follow(focus-bot):closely
just because, I think, I might have lost track of which one I was following before.	Rationale:past doubt (Identity(focus-bot))
Maybe not that close. <silent navigation>	Follow(focus-bot):not too closely
<sigh> <silent navigation> <experimenter prompts subject>	
ummm, I'm vaguely noticing other thinks in the rooms.	See(?)

Participant's Utterances	*Coded*
But mostly I'm just paying attention to following,	Strategy(mentally track focus-bot)
trying to anticipate where he is going.	Strategy(anticipate(focus-bot movement)
Just, thats about. <experiment ends>	End task

<retrospective>

<when you first went into the first room, by the time you got there, you saw two robots, then again when they moved into the next room, you had lost sight of them before you found them again why did you choose this one?>

um, <sigh> Based on the direction that he weas going, I think, I, and the way that he was facing I suppose, um.

<so the direction helped>

yeah, it seemed like, like when he turned the room, it seemed like he was going one way, and I think that thats what helped me to pick. But im I was really unsure in the first room because when I turned the corner it seemed like he coulda turned. And actually been the other one, so I wasn't positive. Um,

<but in the second room? the direction helped? >

yup

<and that was because...>

I must've had some like.... I must have been thinking that he was traveling through as opposed to just wandering around aimlessly or something.

<at the far end you said something like "well I know its not that one" ....>

because I think I still had focus on this one. And the other one wasn't close enough to it, in my mind to have um, that they could have switched.

<strategy>

keeping him in sight mostly. Keeping him in sight, staying close by. and um, that was pr- pretty much it. Although there were times when it seemed like, like where I'm facing him this way right now, where I was facing the other side. But for the most part, I was, just trying to keep him,... in my line of vision. ok. Is that?

Subject 51

Task 6

Participant's Utterances	*Coded*
OK,	Begin-task
I'm following the robot. .. and,	Follow(focus-bot)
<silent navigation> there are some chairs lying here.	See(distractors/perceptual-props(room))
.. There is another robot, .. whose	See(PIO distractor)
... I might get distracted by it. I might get confused,	Warn/self instruction
but I am following this robot.	Follow(focus-bot)
The problem is that, the speed of this robot is, less than mine,	Note(mobility focus-bot)
so.. <silent navigation> I need to control my speed somehow.	Strategy(adapt own mobility)
I'm not sure how many chairs were there because I didn't count it.	
because my concentration on, was on this robot.	Strategy(mentally track focus-bot)
This is some, circuit box kind of thing lying on a table. <silent navigation> oh there's a painting, or ah some sort of,.. clipboard. And there are a rack of boxes,	See(distractors/perceptual-props(room))
.... ok I think I'm entering a computer lab.	Move(adjacent-room) Label(room)
<silent navigation> and the machines look like big Solaris, PCs. <silent navigation> there's a portrait on the wall.	See(distractors/perceptual-props(room))
<silent navigation>.. <experimenter prompts> yeah, oh I collided with the robot. ..... I jumped over it.	Collide-with(focus-bot)
and now I'm following it.	Follow(focus-bot)
I guess in the room there were ... five into two, ten computers. ...	See(distractors/perceptual-props(room))
Oh, I'm following it,	Follow(focus-bot)
its a room, with some sort of, I think its a heater or so. its a table, <silent navigation>	See(distractors/perceptual-props(room))
Its a nar- its a narrow passage, and its another room.	See(perceptual-props(room))
<silent navigation> the robot again collided with me.	Collide-with(PIO distractor)
<silent navigation> I guess I've traversed from some four rooms by now.	Infer(map)
<silent navigation> ahh <silent navigation> I guess, I think I'm back in the same computer room,	Infer(identity(room))
because its a circular roo- loop	Rationale:infer(map)
And there were two portraits on the same row, ah in the room which I traversed before.	Rationale:perceptual-props(room)

Participant's Utterances	*Coded*
<silent navigation> ok, <silent navigation> now I am in back to the, same room from which I entered the computer lab.	Report(location) Infer(identity(room))
With some sort of a circuit box and, a clipboard. Oh I have, another clipboard here.	See(distractors/perceptual-props(room))
<silent navigation> and I'm going b- back to the,	Move(adjacent-room)
same passage where I started from.	Infer(identity(room))

<retrospective>

uh I just tried to concentrate on him and I don't- I just, tried to ignore the other objects uh, which were passing by- other robots which were crossing across theee path.

<you did lose sight of your robot at least once, on entering the first room - how did you chose that one>

yeah, now uh ... at that time, uh I lo- I lost the vision of my robot, but I knew at what path it went. And the, the other robot which, the second robot which came, who uh came from the right side and uh I knew that my robot cannot go, that fast uh uh on that side. And the other thing was my robot went straight theeee the second one... was coming from a different direction. So I could make out that, that they that cannot be my robot which I am following.

Subject 52

Task 6

Participant's Utterances	*Coded*
Ok <silent navigation> <experimenter prompts subject> yeah...	Subject has difficulty vocalizing while navigating
oh there are alot of them, lot many robots.	See(PIO distractors)
I thought there was just one robot.	Fail(believe(focus-bot only))
<silent navigation> ok so basically I'm going straight	Move()
and I can see lot of rooms on either sides.	See(adjacent-rooms)
<silent navigation> umhmm ok there are chairs, tables, computers, it looks like a computer lab to me. <silent navigation> oh there's a painting on the wall, one side.	See(distractors/perceptual-props(rooms)) Label(room)
<silent navigation> looks like the rooms- all the rooms are interconnected.	Report(map)
<silent navigation>.... yes <silent navigation> <experimenter prompts subject> yeah,	Subject has difficulty vocalizing while navigating
I'm trying to get into this room.	Move(adjacent-room)

Participant's Utterances	***Coded***
I can see a blackboard, there's a table out there.	See(distractors/perceptual-props(room))
It looks like a classroom. Yes it is.	Label(room)
Now I'm.... I'm trying to get out of this room.	Move(adjacent-room)
<silent navigation> oh, And in this room there is, there are just chairs, but there is no blackboard.	See(distractors/perceptual-props(room))
Doesn't exactly look like a classroom.	Label(room)
Annnnd ... there is no blackboard I mean to say. The chairs are facing the entrance, the door I mean.	See(distractors/perceptual-props(room))
This kind of seems to be a passage.	Label(room)
<silent navigation> oh and I'm ... outside.	Label(room)
I can see a car on the road.	See(distractors/perceptual-props(room))
I'm on the road right now.	Report(location)
No its all inside a room only. Its all inside a room.	See(distractors/perceptual-props(room))
<silent navigation> I wonder what this blue thing is.	See(distractors/perceptual-props(room))
<silent navigation> Probably its just a painting on a wall.	Speculate(identity(perceptual-props(room)
<silent navigation>..... <experimenter asks subject if subject knows where subject's robot is> no.	
<silent navigation> I'm trying to get out of this room.	Plan(Move(adjacent-room))
It looks as if its closed for ou- close from all the sides.	See(perceptual-props(room))
<silent navigation> umhmm yes. <silent navigation> maybe I can squeeze in through.	Move(adjacent-room)
Yes the robot is here. <silent navigation> <experimenter stops experiment>	See(Bot)

<retrospective>

actually I never tried to follow the robot in the first place, I was just trying to explore the place. what is is there and whats there in it. And that robot was totally out of my mind after some time. It was absolutely out of my mind. In fact when you reminded me "where your robot is?" that time it struck me ok I'm supposed to to follow him or whatever.

<when you first started your robot took a turn to the left and you saw some "other robots" in the room....>

you mean to say how come then I mean how did I conclude that the other robot was not my robot? And the one. Thats because you told me to go straight and the first robot I met I thought, I mean this is usually what's there in games. The first robot was I thought would be my robot whom I have to follow and the other robots were probably just, a part of the game.

<but how did you decide that they were "other robots">

yeah they were other robots you mean to say, I mean was it the same robot which I was seeing? no it wasn't because I could see my robot out here and I could see the other robot out there.

<you could see them both at the same time?>

yeah yeah, I could see a apart of he robot, and the second robot out there. And then Immediately the first one vanished.

Subject 53

Task 6

Participant's Utterances	***Coded***
um,	Begin-task
I'm moving, I'm moving with the robo.	Follow(focus-bot)
I lost him.	Lose(focus-bot)
Oh where is he? <furious navigation while talking> oh.	Search(focus-bot)
while I was following one of the robos	Follow(focus-bot)
I saw another robo in one of the rooms.	See(PIO distractor)
And now I see two of them.	See(PIO distractor) See(focus-bot)
I they are in the classroom.	Label(room)
There's a blackboard, um there's uh table, there are three chairs,	See(distractor/perceptual-props(room))
there's a, a one, oh I have I call, I don't know which one I was following	Fail(identify(focus-bot))
but I'll just kind of go here. <silent navigation>	Choose(Focus-bot) Follow(focus-bot)
I go to another room	Move(adjacent-room)
there are two, the one which I was following and there's another one.	See(focus-bot) See(PIO distractor)
and there is some so- some object here on the table. I guess its a, some electronic I object I don't know. And there's some wall hanging. And I can't make what make what it is. I guess its some just, just some clips up, put on that.	See(distractor/perceptual-props(room))
And ohhh! I lock, I lost my robo!	Lose(focus-bot)
But, I'm following this one.	Choose(focus-bot) Follow(focus-bot)

Participant's Utterances	*Coded*
Another robo came into the room	See(PIO distractor)
and the robo I'm following went into another room	Report(focus-bot movement)
where all computers are kept.	See(distractor/perceptual-props(room))
And then there's another robo in that room also.	See(PIO distractor) Infer(identity(PIO distractor)
And then there are.. there are many computers. Annnd there's a wall hanging.	See(distractor/perceptual-props(room))
And I'm following the robo.	Follow(focus-bot)
The robo is slow. <chuckle>	Note(mobility(focus-bot))
ok, it takes a right turn,	Report(focus-bot movement)
so I go right with him.	Follow(focus-bot)
And he goes into another room,	Report(focus-bot movement)
so I go with him.	Follow(focus-bot)
And no he turns right,	Report(focus-bot movement)
so I turn right with him.	Follow(focus-bot)
The- I see another robo ahead of him.	See(PIO distractor)
But I still follow him.	Follow(focus-bot)
.... Now he turns left. ... And goes into a room	.... Now he turns left. ... And goes into a room
where, there's a vending machine, there is a table.	See(distractor/perceptual-props(room))
And there's another robo coming from some other room.	See(PIO distractor)
But then, another robo leaves the room, goes into another room,	Report(Focus-bot movement)
which looks empty.	See(perceptual-props(room))
And the, one more robo comes in follows the robo which I am following	See(PIO distractor) Report(PIO distractor movement) Follow(Focus-bot)
so like so two of us following the robo	Report(PIO distractor movement) Follow(Focus-bot)
and ... um I'm still following him.	Follow(Focus-bot)
The other robo changes his direction.	Report(PIO distractor movement)
The robo I am following, ok he turns right,	Report(Focus-bot movement)
so I go right with him.	Follow(focus-bot)
... He enters another room.	Report(Focus-bot movement)
It looks very similar to he room I had entered earlier, the one with the computers.	See(perceptual-props(room)) Speculate(identity(room))
But this is a back side view. Earlier it was a view from the front side.	See(perceptual-props(room))
So I don't know whether it is the same room or its another room.	Speculate(identity(room))
Buuuut, oh but I'm still following my robo by the way,	Follow(focus-bot)
this key's not functioning, maybe there's, there's a table, yeah	Navigational-hindrance

Participant's Utterances	***Coded***
Ummmm. I saw another robo coming into the room.	See(PIO distractor)
I turned right, I'm sorry, turned left.	Move()
I see my robo entering the <mumble>room.	Report(focus-bot movement)
Ah he's entered the same room where I'd been earlier.	Infer(identity(room))
The one with the table, and a wall hanging.	See(distractor/perceptual-props(room))
And now, again again I follow, ok he turns right, so I go right with him,	Follow(focus-bot)
and oh he goes backwards.	Report(focus-bot movement)

<retrospective>

<there was a time when you lost sight of your robot..>

yeah, I lost him in the very beginning.

<and so when you saw there were two robots - how did you decided to follow the one you chose>

I don't know, I just picked him, um, or maybe at that particular moment I saw the other other robo, entering the room, or something like that so I knew ok there is this original one and the other one entering so maybe the other one whose entering is the new guy so, I don't know.

<reminds subject that subject actually saw both leaving one room at about the same time - any way chose between them?>

I mean uh, I had already realized that I have lost my robo so I thought that maybe I should just pick one and move around with him, Because anyways he was going to tour me, I mean your me around the whole what ever place, so I just picked one. I kindof ah < chuckle>

<reminds subject of another time that subject looked away and when regained sight of robot there was another one in view, how did subject choose that time?>

yeah, I found him, I found him uh pretty close by to the place where I had, located him earlier for example if I had seen him here and then I had just looked somewhere else and I just saw him over here. So I thought ok yeah he's close I mean, that way.

<reminds subject of a third time - room with pepsi machine, subject looked at the machine and when subject looked back two robots were in vision - how did subject choose there?>

no but I guess by that time I was keepi- keeping the keeping a track of the robo I was following. I made a mistake couple of times, the first two times. But then I guess I was keeping track, whom I'm following.

<what do you mean by "keeping track"?>

I mean. like, just for the fraction of a second when you just look around the room. I don't know. I mean by the time you judge the bace of the robo. I mean you know what pace it moves around with, so like if you know, ok fine, i- the robo is here for example. You just look around, you know, it'll go here, it won't go, real far you know so you know where it go- where that robo is going to be. So you can judge. I mean at least I did so.

Subject 54

Task 6

Participant's Utterances	***Coded***
ok so I'm following,	Follow(focus-bot)
I'm going forward, left,	Move()
I'm following the robot.	Follow(focus-bot)
Oh there is another robot,	See(PIO distractor)
so I'm following .. the, the initial robot.	Follow(focus-bot)
Um now I'm in another room, so uh, I the, I'm changing the room.	Move(rooms) Difficulty vocalizing while navigating
There are two robots now.	See(PIO distractor) See(focus-bot)
But I'm following the one that iat was initially	Follow(focus-bot)
- I see a, table. Some chairs,	See(distractors/perceptual-props(room))
now I turn right,	Move()
opps something happened.	hindrance
Ok now I ok there is a chair,	See(distractors/perceptual-props(room)) Difficulty vocalizing while navigating
now I'm going out of that room.	Move(adjacent-room)
I'm following the robot.	Follow(focus-bot)
Now I'm entering another room.	Move(adjacent-room)
There are two robots again.	See(PIO distractor) See(focus-bot)
.. I'm following the one that yeah I saw initially.	Follow(focus-bot)
<silent navigation> ok .. I'm goin-	Move()
I see another robot.	See(PIO distractor)
I'm going toward another room	Move(adjacent-room)
that is full of computers.	See(distractors/perceptual-props(room))
<silent navigation> lets, there are many robots here.	See(PIO distractors)
but I'm following the one that I initially saw.	Follow(focus-bot)
Ok he's going. ummm around these- the tables with the computing- the computers room. Opps he turns left.	Report(focus-bot movement)
Now we are going out of the room.	Both-move(adjacent-room)

Participant's Utterances	*Coded*
<silent navigation> ok. un- again on a h- hallway we're on a hallway.	Report(location) Difficulty vocalizing while navigating
We're on the initial hallway. ..	Infer(identity(room))
ok now we enter another room.	Both-move(adjacent-room)
ahhh ok there's a Pepsiiiii machine.	See(distractors/perceptual-props(room))
oop there is another, robot.	See(PIO distractor)
But I'm following the one that I initially followed.	Follow(focus-bot)
And we are going out of the room into another room.	Both-move(adjacent-room)
<silent navigation> This is smaller, oh no, we are on the, hallway.	See(perceptual-props(room)) Infer(identity(room))
OK. ... opps another robot is coming in.	See(PIO distractor)
Its following us!	Report(PIO distractor movement)
Ok we go toward the computer room again.	Both-move(adjacent-room) Infer(identity(room))
oops. <silent navigation> We are walking around in the computer room.	Both-move()
<silent navigation> ... there are two more robots in this room now.	See(PIO distractors:2)
<silent navigation> ok we are going out of this room, the computer room.	Both-Move(adjacent-room)
<silent navigation> we arrre back into a previous room.	Report(location)
I don't, know exactly how to call this room.	Fail(label(current-room)
There's something on the table,	See(distractors/perceptual-props(room))
what is that?	Query(self)
ok. We are on the hallway again.	Report(location)

<retrospective>

oh, I was just looking after the fo- robot and I was following it. The the idea is that there were not too many robots so it was not that difficult to follow.

<did you lose sight of your robot at any time?>

no I haven't

<so you basically>

I followed very closely the robot.

Subject 55

Task 6

Participant's Utterances	***Coded***
<silent navigation> ok, should I have? ..	query
ooh this key is really sensitive keyboard. ...	Navigational-hindrance
ok I'm just following the robot at present. <silent navigation> still following the robot. <silent navigation>.... ok. ffffffffolowing the robot into a room <deep breath>.	Follow(focus-bot)
I see, I see tables with chairs. with computers and keyboards on them.	See(distractors/perceptual-props(room))
.....aaa Iiiiii	Subject has difficulty vocalizing
just following the robot	Follow(focus-bot)
and I see, each table with a chair, and a computer and a keyboard	See(distractors/perceptual-props(room))
. I see multiple robots now.	See(PIO distractors)
I still follow,	Follow(focus-bot)
I can follow any one? <experimenter reminds subject of the directions>	Query(experimenter)
ok. <silent navigation>.. allright, I see a painting on the wall. <silent navigation>..	See(distractors/perceptual-props(room))
ok, I guess I'm gonna go ou-	Anticipate(followed-bot movement)
no I don't go out yet. [note at this point the subject is following the wrong robot.]	Fail(anticipate(followed-bot movement))
Following the robot,	Follow(followed-bot)
still in the same room.	Report(location)
see another painting on the wall. <silent navigation>..... all the table- each table and the computer and the keyboard and the chairs look all alike. Seem to be, total of four rows of those.	See(distractors/perceptual-props(room))
<silent navigation>.. just walking between the row.	Move(in room)
Guess I'm going back to the sssssssssssssame old place where I was at one time at the beginning.	Move(in room)
And I see the other robot again.	See(focus-bot) Fail(infer(identity(focus-bot)))
<silent navigation> see many other robots.	See(PIO distractors) See(focus-bot)
sss ok. <silent navigation> can ch ch ch ch	??
<experimenter stops experiment, correct robot has gone by again and subject clearly has been following this robot and will continue - total experiment time has elapsed as well.	

<retrospective>

[subject switched robots twice - retrospective focuses on that]

<first time, subjects robot turned left, and then another came out from the right - subject followed robot from right - what strategies did subject use to decide to follow that one?>

Ah It didn't seem to be I was following, I was, I was always thinking that I was following the, I was thinking that the robot which I was following was the same robot from the very beginning.

<what made you decide that it was the same robot?>

'cause it looked to me as if I was going with the flow, or with the way the first, that particular robot was moving. Annd it seemed to me that, it was the same robot because it was, uh just continuing to move in the same way, as it was. Thats what I felt. ah.

<experimenter thinks that subject is talking about a different place than experimentor - reminds subject that we are talking about the very beginning>

before I went into the room you mean?

*<experimenter repeats description of ro*bot going left into a room and a robot coming from the right just afterward.>

ooooohh oh ok ok ok ok. Thats, ok. I didn't know at f- the very beginning there were, there were going to be more than one robot. And so when I went, I- I missed turning into the- into left. I thought its the same robot coming out from this way, so I started following that, that robot. So, it ok.

<the robot that subject was then following made a right turn into the computer lab, subject lost sight of it for a few seconds and then when subject got into the lab there were more than one - what strategy did subject use to choose which one to follow?>

Ah it didn't seem uh, I mean, although I was, maybe a bit, behind, It didn't seem to me I had sort of lost, sight of it. Although uh, physically speaking I may have lost sight of it, but I thought I was, on track, I sort of knew where, this robot would be and so, when I saw a particular robot, I started following that one, thinking its gonna be the same one who was, who I was following in the beginning.

Subject 56

Task 6

Participant's Utterances	***Coded***
ahhh	Begin-task
now I'm following the robot.	Follow(focus-bot)
I'm turning left.	Move()
uh now I see two robots in it,	See(focus-bot) See(PIO distractor)

Participant's Utterances	***Coded***
there are a couple of chairs, or I believe seven of them.	See(distractors/perceptual-props(room))
The robot is now going to adjacent room.	Report(focus-bot movement)
Hmm, in this room I find a chair a table and a blackboard, there are I think, eight chairs. a table, there is something scribbled on the blackboard.	See(distractors/perceptual-props(room))
Now I'm following the robot to an adjacent room.	Follow(focus-bot)
And its now turning left.	Report(focus-bot movement)
This room, has got a cupboard, hmmm <deep breath> and a table with a ... seems like an electronic gadget. And this room is blue, has got blue walls. There are two bulletin boards.	See(distractors/perceptual-props(room))
I think. <silent navigation> hm <silent navigation> I lost the track of the robot.	Lose(focus-bot)
Oh here he is.	Infer(identity(focus-bot)) ***
ahhh In the room adjacent to it. there are a couple of PCs, of workstations. Probably, ... [whispered] four. five. five . six..eight. [normal voice] ten of them. <silent navigation> hmm each PC is on a table, it has go a keyboard, and...	See(distractors/perceptual-props(room))
<silent navigation> ah now I'm just trying to explore this room.	Search(current-room)
<experimenter - do you know where your robot is?>	
yeah, I know where my robot is.	Infer(identity(focus-bot)) ***
<silent navigation> <experimenter stops experiment since subject has fixated on wrong robot for sometime>	

<retrospective>

<at first when your robot turned left and went into the room, you lost sight of him and when you saw it again - you saw two robots - how did you choose which one to follow?>

a to be frank with you, when I entered that room, I saw two robots, and I in fact they were similar to each other, so I actually couldn't figure it out. And both went in the same direction right? so I - since I had to follow a robot, I followed both of them because they went in the same direction. And in that room it seemed because, while I was trying to explore, I lost track of the robot, and uh now that I see this robot again, I visually perceive that is somewhat similar in uh maybe is outlook appearance, so uh I though its my own robot and thats when you ask, thats how I perceived it was my robot.

<in the second room, there were the two robots you followed in from the first room, you looked away again and so when you looked back how did you choose?>

oh, as I said. I got confused: which robot was mine? because they have got similar appearance and,

when the robot started to move out, that made me think that he was the guide and that's why I went to that another room. Because I had done with this room basically and I thought that second robot, I couldn't find out why it was there. What purpose does it serve because initially if one robot, there has to be one guide, so I thought maybe the robot which was initially assigned to me was my guide. And I had to follow basically one guide. So I couldn't figure out, why the second robots was there and why it followed this first robot. And because they were similar in appearance I basically lost track of then and I simply followed the robot, which went in the other room, thinking that he was my guide.

Subject 57

Task 6

Participant's Utterances	***Coded***
Allright	Begin-task
I'm following this robot,	Follow(focus-bot)
it makes a quick left turn.	Report(focus-bot movement)
<silent navigation> there's one robot that I see	See(focus-bot)
and a sequence of chairs.	See(distractors/perceptual-props(room))
I wh- this is my first room, just to note this down.	Label(room)
Its a class room that its gone in now next.	Report(focus-bot movement) Label(room)
There's a... board on the wall.	See(distractors/perceptual-props(room))
and theres yet another robot	See(PIO distractor)
thats following, coming along with us in fact.	Report(PIO distractor movement)
Its out of the rooms. And it's in the corridor,	Report(focus-bot movement/location)
that we were in earlier.	Infer(identity(room))
Its turned, right, that means, allright did I see, it's it's gone in other room.	Report(focus-bot movement)
There's yet another robot there.	See(PIO distractor)
It's so- a chair,	See(distractors/perceptual-props(room))
I guess I should follow it	Plan(follow(focus-bot))
whoops! is this my robo?	Confusion/doubt
it better be. I hope it is.	Infer(identity(focus-bot))
I was trying to go behind it so that uh, uh I'm considering the rods protruding out to be its eyes or whatever.	comment
So its in the forth room now.	Report(focus-bot movement/location) Label(room)
Its a computer lab of sorts I guess. <silent navigation>.	Label(room)
There was a robot that went by uh, in the forth room.	See(PIO distractor)
<silent navigation> its turned now.	Report(focus-bot movement)
<silent navigation> I just hope I'm following the right robo.	Doubt.
Oh there's yet another robot,	See(PIO distractor)

Participant's Utterances	***Coded***
that collided with me right now.	Report(PIO distractor interaction)
<silent navigation> I'm in the corridor, once again.	Report(location) Infer(identity(room))
Four rooms so far.	Report(map)
<silent navigation> This is the fifth room.	Label(room)
Is that an oven or s-? yeah I guess this is some kind of uh of somewhere just where you can sit and eat.	See(distractors/perceptual-props(room))
A robot just went past.	See(PIO distractor)
<silent navigation> I think thats the same robot that's come behind me.	See(PIO distractor)& Infer(identity(PIO distractor))
<silent navigation> I'm making sure it's out of the way now.	Avoid/track(PIO distractor)
I don't know where I am now in fact.	Fail(infer(map))
probably in the fifth room that's adjacent to, the, eating lounge.	Speculate(map)
And then I'm back in the uh computer lab.	Infer(identity(room))
<silent navigation> I'm just making sure that I'm not too close, because uh, I might probably pass him	Follow(focus-bot):at distance Strategy(object continually viewed is same object)
and, there's one more robot	See(PIO distractor)
that I don't want to, misunderstand who I'm following.	Plan(track focus-bot and PIO distractor) Strategy(object continually viewed is same object)
<silent navigation> this is the sixth room I guess.	Infer(identity(room)) **
No the fo- third room that I was in earlier. third or forth I'm not very sure. Oh this an - oh this room I had been earlier.	Reevaluate(identity(room)) Infer(identity(room))
<silent navigation> I should make a note that this particular robot is a brown, some light or something on its head,	See(perceptual-props(focus-bot))
so just in case I get confused, a - I can, that might be an identifying...	Plan(identify using perceptual props)

<retrospective>

Well nothing I just kept f- uh I just kept a safe, a safe distance from him. uh I shouldn't be too close or mi- I might, I might colli- collide, and then uh misunderstand some other robot to be his guy who I have to follow. And I w- I shouldn't be too far off because the same thing might happen. Somebody, el- some other robot might cross over and uh, I might misunderstand.

<there was a time when you lost sight of your robot and another robot when they were together when you looked back you expressed that you were not sure that you had chosen the right one - how did you choose?>

um because uh, this particular robot has its uh those protrusions out, uh ... uh away from me, when I was following him, and when I collided and when I was faced with this, as to who I should follow, so I tried to, I guessed that it probably turned back, so the one, which I thought was oriented away from me, an angle that was closer to the original orientation, I chose that uh randomly. So those ma- protrusions were my reference guide kind of a thing.

<so it was which direction he was facing?>

yes.

Subject 58

Task 6

Participant's Utterances	***Coded***
<sigh> following the robot,	Follow(focus-bot)
and moving into a room,	Move(adjacent-room)
<silent navigation> huuu, I see two robots right now,	See(focus-bot) See(PIO distractor)
and the total number of objects in the room is. ... seven there are totally seven chairs in that room.	See(distractors/perceptual-props(room))
Now I'm following the robots, into the next room.	Follow(Focus-bot) & Follow(PIO distractor)
And I see totally,.... ten objects here	See(distractors/perceptual-props(room))
and one robot's stopped in this room	Report(PIO distractor movement)
and the other robot exited the room,	Report(Focus-bot movement)
so I'm following the one which exited the room.	Follow(focus-bot) Infer(identity(focus-bot)) Strategy(??)
<silent navigation> .. oops I guess I missed the robot.	Lose(focus-bot)
I'm entering the next room.	Move(adjacent-room)
I find, no objects that room.	See(perceptual-props(room))
So I'm going to the next one. Turning right,	Move(adjacent-room)
and I find, a lab.	See(perceptual-props(room)) Label(room)
There is another robot here,	See(PIO distractor) Infer(identity(PIO distractor)
and the total number of objects in this room is...<whispered muttering> ... So there are ten.	See(distractors/perceptual-props(room))
<experimenter asks subject if subject know where subject's robot is>	
No, I don't know whether this is the robot that I was following in the beginning,	Fail(infer(identity(PIO distractor)

Participant's Utterances	*Coded*
because each room seems to have a separate robot.	Strategy(assign robot to room)
<deep breath> oh o boy, ok, now the total number of objects I found in this room was ..... ten PCs, ten tables, ten chairs, and ... two paintings on the wall,	See(distractors/perceptual-props(room))
and apart from the robot on the room.	See(PIO distractor)
So moving to the next room....	Move(adjacent-room)
And I did see another, there's another here,	See(PIO robot)
apart from a, whatsa - block on the table, so the total number of objects in this room are like, one chair, one ,table, one block, And, there's a notice board on the wall. Apart from some drawers, there are four drawers in all. And there are actually two notice boards I guess. Yeah there are two notice boards on the wall.	See(distractors/perceptual-props(room))
Now I'm moving to the next room. <silent navigation>	Move(adjacent-room)
I find another robot coming towards me.	See(PIO robot)
I guess I might have sort of, and it stopped right next to me.	Report(PIO robots movement) Reason (PIO robot's movement)
<experimenter stops experiment since time is up for original robot's path.>	Failure stop

<retrospective>

<while subject was following the robot - what strategy did subject use?>

ah I basically followed the robot which left the room. So I basically felt like each, the robot was trying to guide me through each room.

<at the beginning your robot turned left into a room - but the time you arrived there you was two robots, how did you choose>

no it was the one which left the room. Like both the robots left that room and entered the second room and then the one which again left that room, I took that robot, because that left-led me to the exit, of that room.

Subject 59

Task 6

Participant's Utterances	*Coded*
allrighty,	Begin-task
Following the robot.	Follow(focus-bot)
OK the robot turned left.	Report(focus-bot movement)
I'm going to follow the robot into the room.	Follow(focus-bot)

Participant's Utterances	*Coded*
Ok now there's two robots.	See(focus-bot) & See(PIO distractor)
ok I'm going to follow the one robot.	Infer(identity(focus-bot)) Strategy(???) Follow(focus-bot)
Following the robot into another room. .....ok.. I'm still following the same robot. <silent navigation>.... still following the same robot.	Infer(identity(focus-bot)) Follow(focus-bot)
There's two robots	See(focus-bot) See(PIO distractor)
and one.. took a different path than the other robot,	Report(PIO distractor movement) & Report(focus-bot movement)
than I was originally following,that appeared in the first room that the robot went into.	Infer(identity(focus-bot))
Still following that same initial robot.	Follow(Focus-bot)
And I'm seeing, couple other robots. um appearing	See(PIO distractors:2)
in a... computer room.	See(perceptual-props(room)) Label(room)
Still following that same robot. <silent navigation>.	Follow(focus-bot)
OK another robot just crossed my path	See(PIO distractor) Report(PIO distractor movement)
but I'm still following the same robot.	Follow(focus-bot)
I am noticing that the robot that I'm following is, looks to me like he's moving backwards the whole time. um I don't know if that's the way the robot moves or not.	Understand/report(focus-bot movement) Strategy(robot movement orientation can identity robot)
<silent navigation> still following the robot,	Follow(focus-bot)
its going right by a bunch of computers	Report(focus-bot movement) See(distractors/perceptual-props(room))
into... back into the hallway. <silent navigation> robot's traveling down the hallway.	Report(focus-bot movement) Label(room)
Still following him. <silent navigation>	Follow(focus-bot)
.. he's turned into the room on the left...	Report(focus-bot movement)
ok, oh its a Pepsi machine, would you look at that. j- stove, and also a table	See(distractors/perceptual-props(room))
. ... still following the robot.	Follow(focus-bot)
Kinda looking down the hall.. To see what's down the hall.	Search(hall/room)
Still following the same robot.	Follow(focus-bot)
. there's a robot bumping into me.	See(PIO distractor) Report(PIO distractor movement)
Get away! move!	Address(PIO distractor)

Participant's Utterances	***Coded***
<silent navigation> ok going back into the same computer room but from a different entrance.	Move(room) Infer(identity(room)) Infer(map_
<silent navigation>..... still following him.	Follow(focus-bot)
<silent navigation>... ok we're leaving the computer room.	Both-move(adjacent-room)
<silent navigation>... all right going back into the hall.	Both-move(adjacent-room) (infer(identity(room))

<retrospective>

I just kept my robot in my perspective, the whole time. Just followed him.

<in the first room you lost sight of your robot and when you looked into the room, you saw two - how did you choose?>

Ah I just kinda guessed where he was going. And I, I kinda figured if he was, I just remembered the path that he was taking and I followed that same path that he was taking. It was like orientation if I remember, was the same.

Subject 60

Task 6

Participant's Utterances	***Coded***
So I'm following the ro- the robot.	Follow(focus-bot)
There's two of 'em.	See(PIO distractor)&See(focus-bot)
Around the chairs, that are in the room. <silent navigation>	Move() See(distractors/perceptual-props(room))
Then he goes, into another room.	Report(focus-bot movement)
Going in there.	Move(adjacent-room)
Following him.	Follow(focus-bot)
There's another robot in front of him.	See(PIO distractor) &See(focus-bot) Infer(identity(focus-bot))
I think it might be following that	
but, I guess not.	Fail(row above)
<silent navigation> He just went around the one room. <silent navigation> Then to another one.	Report(focus-bot movement)
There's another one. <silent navigation>.	See(PIO distractor)
He's swinging around.	Report(focus-bot movement)
I think that's the right one.	Infer(identity(focus-bot)

Participant's Utterances	*Coded*
<silent navigation> checking to see if there's another one that, went away on me.	Track(PIO distractor)
So I don't follow the wrong one. <silent navigation>	
... There're a bunch of tables with computers on it.	See(distractors/perceptual-props(room))
Into the hall..way. <silent navigation>	Both-move(adjacent-room) label(room)
..... following it into another room.	Follow(focus-bot(
<silent navigation> or kinda looks like the end of the corridor.	Label(room)
Another one came up behind me <chuckle> <silent navigation>.	See(PIO distractor)
Going into another room. <silent navigation>	Move(adjacent-room)
the same one from before.	Infer(identity(room))
<silent navigation>... move out of the way of the other one.	See(PIO distractor) Move()
<silent navigation> Go into another room.	Move(adjacent-room)
<silent navigation>. follow him into the hall.	Follow(focus-bot)
And he stopped!	End task

<retrospective>

Just, stay as close and I can to to him and hope no other one doesn't confuse me.

<there was one time you looked away and your robot went out of your vision, when you looked back, there were two robots, how did you choose which one to follow? (when subject was in the room with the big thing on the table - subject looked out the door at a robot there)>

I was following my robot because he was moving, same direction I was, and the other one was just coming in, so, he was leaving and the other one was coming in, so the one that was leaving, was my robot.

Subject 61

Task 6

Participant's Utterances	*Coded*
<silent navigation> <experimenter prompts subject>	Subject has difficulty vocalizing while navigating
umm I'm following the original robot.	Follow(focus-bot)
There appears to be two now	See(PIO distractor) See(focus-bot)
but, I can keep track of the one.	Infer(identity(focus-bot))

Participant's Utterances	***Coded***
<silent navigation> even though they're the same... they started out in different positions so its its easy enough to distinguish them. <silent navigation>	Strategy(location) Strategy(objects continually viewed are same objects)
.. I guess that's ... that be how I would tell the difference, or thats how I tell the difference anyways. <silent navigation>	Strategy-reference
... at that point I, I backed off so I could see where the robot was going,	Strategy(anticipate focus-bot movement)
instead of getting all caught up with the other one, and the objects in the room.	Ignore(distractors/perceptual-props(room))
<silent navigation>. I try and follow it,	Follow(focus-bot)
um with a distance so that I-I know that if its gonna make, a drastic move I'll be able to, follow it correctly, I guess.	Strategy(follow at optimal distance) Strategy(object continually viewed is same object)
<silent navigation>..... <experimenter prompts subject.>	
umhmm umm is there another robt behind me?	See(PIO distractor)
yeah that was kind of a trip up,	Report(cognitive-difficulty)
um,... I guess its, getting confused would be more of an issue of not really, focusing on the one robot that you're following.	Speculate(possible failure)
I mean, for all intents and purposes I could be confused at this point, but uuhh I think I've been keeping track of the right one.	Infer(identity(focus-bot))
<silent navigation>.... now I'm just, following it	Follow(focus-bot)
closely behind, so none of them sneak up on me like that again.	Strategy(object continually viewed is same object)
It's kind of interesting. <silent navigation>.	comment

<retrospective>

um I was, in order to distinguish the robots I just .. um I kept track of the original robot, relatively umm closely so that if, if I was in a room with anoth- with multiple robots I'd know which one I entered with, and um, if there was another robot in the room I'd kindof ignore it. I'd just stay on the one, the initial robot. um I would- I would keep, a distance, but not um, a great distance from it. Probably about ummm, I don't- maybe, maybe three of these floor tiles. Just so that, I was close enough so that I wouldn't lose it but I was, there was enough distance so that if it changed direction, I would be able to compensate for that.

<in the beginning, when your robot went into the first room, by the time ou got there there were tow robots visible, what strategy did you use to decide that which was your robot?>

um based upon uh, the position, I guess, that it had uh, that I had followed it to? Are you referring to

when I was over here and the, it had, came beh-, like it went behind the, like the table? with the computer?

<no the very first room - and by the time you got there you saw two robots>

umm kindof, I guess you could say that I would um, I assume I was following the position that the robot must have been going in. I think I remember which room you're talk- yeah there were chairs here and then there was the one robot here and then the one I was following here correct? <experimenter affirms> Um I g- I'd, I had made the assumption that this robot couldn't have been mine because, if it was the the guide robot, then, um it would have gone a great distance at the speed that it was going in. I mean, its possible that it changed speeds but it didn't really appear to do so thought the game so.

<and then in the other one when it when behind the table, what was your strategy?>

Well I stopped there because I w- um, I thought it might change directions. So I figured that if, as long as I was keeping track of it I didn't really have to follow it that closely, so, I just kindof ignored the other robots and paid attention to the one.

<just the one?>

yeah that was another assumption that I made, that there was just the one.

Subject 62

Task 6

Participant's Utterances	***Coded***
<silent navigation><experimenter prompts subject>	Subject has difficulty vocalizing while navigating
ok, uh we've entered a room,	Both move(adjacent-room)
full of, chairs.	See(distractors/perceptual-props (room))
Something like a classroom or something.	Label(room)
And there arrre a couple of robos.	See(PIO distractor) See(focus-bot)
And uh, we enter a second room.	Both-move(adjacent-room)
Which is a class.	Label(current-room)
With a, with a white board and table and chairs as well.	See(distractors/perceptual-props (room))
and uh, ok we've gone into a third room now.	Both-move(room) Label(room)

Participant's Utterances	*Coded*
<silent navigation> uh do you want me to count the number of things we see? <experimenter reads a couple of lines from the task description, which tells the subject that subject's task is to follow their robot>	Query(experimenter)
Ok we've come to this room	Both-move(adjacent-room)
and there's this some kind of a- a machine.	See(distractors/perceptual-props (room))
<silent navigation>.. ok, ...<experimenter prompts subject>	Subject has difficulty vocalizing while navigating
ok um we're going backwards,	Report(movement) [subject has switched to following a PIO distractor]
uh I guess I don't know, I think,	confusion
we're goinnnng around the room or something.	Both-move()
... uh, the robos coming backwards	Report(followed-bot movement)
I better follow it rather than going ahead of it.	Plan(follow(followed-bot))
<silent navigation>. annnnd we just seem to be going on and on through this passage [note subject is at this point following the wrong robot]	Both-move(corridor)
<silent navigation> annnnd ffffffinally we take a, r- left turn.	Both-move(adjoining corridor)
annnd uh there's aaaa, there's a door at the end of it or something.	See(door)
<silent navigation>. there's a Pepsi vending machine, annnd uh, a table.	See(distractors/perceptual-props (room))
annnnd I follow the robo again.	Follow(followed-bot)
<silent navigation> .. <deep breath> annd that one's mine [note that subject has now stopped following the one subject was following in favor of the original robot again - however subject does not realize that subject has made any changes at all]	Infer(identity(followed-bot))
<silent navigation><sigh> ok we enter a computer lab.	Both-move(adjacent-room) Label(room)
The labs <undecipherable> computers. um, the room is painted blue.	See(distractors/perceptual-props (room))
ummm there are two robos.	See(focus-bot) See(PIO distractor)
And its kinda confusing as to which one's mine.	Doubt(identity(focus-bot))
<silent navigation>. Now there's a third one out here as well, its just stationary.	See(PIO distractor) Report(movement(PIO distractor)
And we enter the f- another room.	Both-move(adjacent-room)
I think its the same one in which we b- we'd come earlier.	Infer(identity(room))

Participant's Utterances	***Coded***
Um with the machine.	See(distractors/perceptual-props (room))
<silent navigation> umm so we move ahead.	Both-move()
and the robo's come to a halt.	Finish-task

<retrospective><note that unlike earlier subjects, experimenter hasn't told subject success or failure at task before the retrospective (of course this was the "do two wrongs really make a right?" subject so I wasn't that sure>

um well I, try to keep as little distance from it as possible so that could identify which one's mine.

<when you were in the room with the big thing on the table you looked back at me [the experimentor] and asked a question. When you looked back [at the screen] you saw the two robots and you chose one. What strategy did you use to choose that robot?>

I don't remember <chuckle> I assumed that uh since the back of it was pointing to me, uh this one was the one which I was following until now.

<and then at the other end of the hall, in the room with the pepsi machine->

yeah I just chose one of them.

<you looked around and when you looked back you saw two of them>

Yeah two of them were suddenly up there and I, I- I thought uhh the one coming, nearer me, was mine. I didn't have any, clue of which one was mine at that point.

<when you finally made the decision, I mean, you "punted" on the decision a little way, until the got out into the hallway and started going in different directions>

um-hm,

<when you finally made the decision, was that how you made it? or did you?...>

I didn't get you.

<when both robots came out into the hallway, you followed behind both of them until one of them went straight and->

oh ok yeah. I had already decided that one of them, the one, which I was following, was mine. And so I mean it didn't matter eventually that one of them went right and one of them went straight, because I was going to follow the one wich was going straight, I mean which was mine. yeah.

<experimenter tells subject about switching robots>

Subject 64

Task 6

Participant's Utterances	***Coded***
allright,	Begin-task
I'm following the robot.	Follow(focus-bot)
Robot, uh, making a left turn.	Report(focus-bot movement)
I'm entering the room,	Move(adjacent-room)
in which there are several chairs.	See(distractors/perceptual-props(room))
... There are two robots in the room.	See(Focus-bot) See(PIO distractor)
I'm following my original robot and making a right turn.	Infer(identity(focus-bot)) Follow(focus-bot)
Entering the second room,	Move(adjacent-room)
in which there are, several chairs um, arranged, as though it is a conference room. A white board, and a table,	See(distractors/perceptual-props(room))
af, I'm following.	Follow(focus-bot)
I'm getting out of the room,	Move(adjacent-room)
I'm following the original robot. Making a right turn. <silent navigation>.	Follow(focus-bot)
The robot is making a, left turn	Report(focus-bot movement)
so I'm following him into the robot,	Follow(focus-bot)
I see a table. With some sort of radio equipment on top.	See(distractors/perceptual-props(room))
<long slow breath> um there are two robots in the room,	See(PIO distractor) See(focus-bot)
and there is a, bulletin board, with um, some bulletins and information, on it. And there is also a, cabinet, a file cabinet. The room is blue, there are two bulletin boards.	See(distractors/perceptual-props(room))
Iii'm following the robot into the next room.	Follow(focus-bot)
There are two robots in this room also.	See(PIO distractor) See(focus-bot)
There are a series of computers arranged on workstations and tables, with the a- the accompanying chair. There is a poster, on the right hand side of the room. There's a second poster, same side of the room.	See(distractors/perceptual-props(room))
Making a, left turn... I'm getting out of the room into a, corridor.	Move(adjacent-room) Label(room)
And following the robot, making a right turn. <silent navigation>. Umm making a left turn into another room.	Follow(focus-bot)
There is a soda dispens- dispenser machine in the room and what looks like an oven and table.	See(distractors/perceptual-props(room))

Participant's Utterances	***Coded***
This, room looks like a, communal kitchen.	Label(room)
Um, I'm entering another loo- room to the, far left,.. opening, on the door, on-on the wall.	Move(adjacent-room)
There are two robots.	See(PIO distractor) See(focus-bot)
I'm following the original robots	Follow(focus-bot)
and there's a, wide, uh slightly long corridor. Um intersectio- intersecting the original corridor.	See(perceptual-props(room))
<silent navigation>. I'm entering the room	Move(adjacent-room)
with the computers that I described before. A blue room, the room has not changed...	See(distractors/perceptual-props(room)) Infer(identity(room))
Following uh, the robot guide.	Follow(focus-bot)
<silent navigation>.... I am entering the roo- previous room,	Move(adjacent-room) Infer(identity(room))
with the, radio equipment, on top of the table...	See(distractors/perceptual-props(room))
I'm, still following the robot.	Follow(focus-bot)
The robot is, going out, making a right turn now	Report(focus-bot movement)
into the original corridor , from which I started.	Infer(identity(room))

<retrospective.>

uh, at first I tried to just follow the robot and after a while it became apparent that the robot simpl- uh simply goes into, each, room. Uh as you first progressed. And then, when you get into that back corridor, into that intersecting corridor, the robot makes right turn, so I kinda know what the robot is, pretty much going to lead me, you know from room to room.

<ther were several times when you were in a room when you turned around to look at a bulletin board or something and there were other robots in the room with you. What did you do to choose your robot and not one of the others?>

Um, well if you noticed, when I turn around to look at a bulletin board, I, kinda know wha- where my robot is going, and I kn- knew from the beginning as I entered the room that there is, another robot there and that robot pretty much stayed in that room. So I was looking at the bulletin boards and I saw out of the corner of the monitor, that the robot is still going straight, or to th- its next path. So I turned and I followed it again. Uh it's it's di- dis- distinguishable which robots that you, originally followed.

<what is distinguishable?>

The- which robot that you originally followed, which is your, original, guide robot and. You can distinguish that.

<by?>

um, by its movement. By you know, where its going and by its behavior because its pretty much going straight. And it has a set, movement, where as the- the rest, seems to just go around the room, and just, turn around.

Subject 69

Task 6

Participant's Utterances	***Coded***
So I'm following him,	Follow(focus-bot)
hrrhhh, trying to turn into the room <chuckle>	Navigational-hindrance(wall)
he's turning into.	Report(focus-bot movement)
<silent navigation> Ok, I'm in a room	Report(location
with lots of chairs.	See(distractors/perceptual-props(room))
<silent navigation>.. and, I didn't even, completely look around that room, now that I think about it.	Fail(search(prev-room)
I might be following the wrong robot again.	Doubt(identity(focus-bot),robot)
But, I think I have the right robot.	Speculate(identity(robot))
<silent navigation>, and he's just standing there.,	Report(movement(robot))
so I'm going to go look back in the other room.	Strategy(background knowledge of tour guides) Move(adjacent-room)
ok, there was no other exit for him,	See(extra doors:0) Strategy(eliminate possible paths of focus-bot)
I'm going, around the table, I'm trying, to be behind the robot.	Move(in room)
ok, he's just standing there. <silent navigation>,	Report(movement(robot))
and I'm still looking for something to do.	Subject knows something is wrong
<experimenter stops experiment>	

<retrospective>

Umm strategies? I was trying to keep up with him.

<when you saw the robot turn left into the room originally, before you turned left, you saw another robot come out from the right>

yup

<or rather you saw a robot come out from the right, you looked at that one and then backed off and chose not to follow that robot and elected rather to go into the room on the left>

<because, I'd rather see if there was a way to get from the room on the left to the room on the right before I followed the wrong robot, and then I walked into the room on the left and, saw a robot that

looked like it, so I followed him anyway.

Task 7 Codes

Task 7 transcript codes begin here

Subject 31

Task 7

Participant's Utterances	***Coded***
Ah alright.	Begin-task
So I just follow this guy? *[experimenter]*	Query(experimenter)
key. He's going left,	Report(focus-person movement)
o following him in there.	Follow(focus-person)
There's another guy,	See(distractor-person)
moving his arm up and down,	Report(distractor-person movement)
following them both……	Follow(focus-person & distractor-person)
he is turning around…..and going into another room, making a right……..and then a left……	Report(focus-person movement)
.just looking around	Search
because I'm curious……	Rationale:curious
.and…..okey there is…	Trouble vocalizing
he's going into another room	Report(focus-person movement)
with a bunch of computers,	See(distractors/perceptual-props(room))
just following him	Follow(focus-person)
because that's the task	Rationale:instruction
……*[experimenter prompts subject]* okey,	
.he's going into another room	
with some tiles,	See(distractors/perceptual-props(room))
and making a right,	Report(focus-person movement)
this girl dancing in the background	See(distractor-person) Report(distractor-person movement)
He's making a left … to a room	Report(focus-person movement)
with something else like an oven, a table, a pepsi machine,	See(distractors/perceptual-props(room))
girl's still dancing.	See(distractor-person) Report(distractor-person movement)

Participant's Utterances	***Coded***
He's going into another room,	Report(focus-person movement)
and the girl just walked out.	Report(distractor-person movement)
He's continuing to walk straight, ….. and walks backwards into another room,	Report(focus-person movement)
same room with all the computers in there	Infer(identity(room))
. ……..he's just continuing to walk backwards	Report(focus-person movement)
….there's another guy behind him,	See(distractor-person)
he's got a skating or something……	Report(distractor-person movement)
and another guy pointing…	See(distractor-person) Report(distractor-person movement)
..he's walking into another room,	Report(focus-person movement)
one of the first rooms I came into.	Infer(identity(room))
There's something on the table. I'm not sure what it is, looks like a chest or something.	See(distractors/perceptual-props(room))
Walking out the hallway	Both-move(adjacent-room)
and he stopped. *[experimenter talks in the background]*	End-task

[experimenter asks about the strategy used] ahh remembering what he looks like and looking around the rooms while trying to find exactly where he is and kind of remember based on his velocity, where he, where he is gonna be next, sort of, so I can find him again.

[experimenter poses more questions] I just looked around changed my perspective 'til I could see all of them and then just added them up.

[experimenter asks more questions] I do not understand what you mean.

[experimenter connects the two experiments done by the subject and asks for the subject's feedback]

mm i guess I just kind of based it on the fact that they would be stationery throughout the rooms and there was nobody else in there.

Subject 32

Task 7

Participant's Utterances	***Coded***
Now I see a man,	See(focus-person)
just down then I see I couple of mans.	See(focus-person) & See(distractor-person)

Participant's Utterances	*Coded*
I see seven chairs.	
They are both walking back.	Report(focus-person movement) Report(distractor-person movement)
It looks very strange to me, walking in a opposite motion.	comment
Then there is another room.	Move(adjacent-room)
It's got chairs. Five plus three, eight, and a big table and a blackboard.	See(distractors/perceptual-props(room))
okey. I now leave the room,	Move(adjacent-room)
sort of try to follow the man who is walking.	Follow(focus-person)
Here I see another room	Move(adjacent-room)
and this is a huge room. I see a board, a mirror, a mirror? oh, it's a board actually.	See(distractors/perceptual-props(room))
Alright. Somebody just ducked me, he just passed by me	Report(distractor-person movement)
and there is a huge a huge block, a marble or something on the table	See(distractors/perceptual-props(room))
and I see another room in here.	See(adjacent-room)
Mmmm no it's man actually. . .	See(distractor-person)
and now I go straight and	Move(adjacent-room)
I believe it's a computer lab I have entered.	Label(room)
It's got quite a lot of computers actually	See(distractors/perceptual-props(room))
and few people around as well	See(distractor people)
and approximately (sigh), ten computers all getting separate tables with chairs,	See(distractors/perceptual-props(room))
then I see another man pass by me in purple suit.	See(distractor-person) perceptual-props(distractor-person)
Well, I'm getting out of the room. I guess, I've already gone	Move(adjacent-room)
…probably take a right turn, a left turn,	Anticipate(focus-person movement)
and I see the same woman,	See(distractor-person) infer(Identity(distractor-person))
the same man,	See(focus-person) Infer(identity(focus-person))
a kind of oven kept on the side of the wall, a huge pepsi, it's a machine, it's a scan machine actually. Then there is a table there.	See(distractors/perceptual-props(room))
Walking straight, down the room, and getting out of the front of these two guys,	Move(rooms) See(distractor-person) See(focus-person)
it's the same lab.	Infer(identity(room))
I just go straight,	Move()
been to this room, been to this room.	Infer(identity(room))
I'll take a left here.	Move()

Participant's Utterances	***Coded***
At, there's nothing in the room.	See(distractors/perceptual-props(room))
Go back. Take a left, right, sorry. Straight down into the room,	Move()
nothing is there,	
getting out, taking a right…..alright.	Move()
So there is a room.	See(room)
There is someone trying to teach.	See(distractor-person)
Alright. There is a blackboard, a table, chairs . . .	See(distractors/perceptual-props(room))
*[Experimenter: do you know where your tour guide is?]*I'm sorry? [*Experimenter repeats query]*oh, it was the tour guide?	Experimenter queries subject Is subject performing task??
oh, okey. Alright. That's the tour guide, I believe…	See(distractor-person) Infer(identity(distractor-person-> focus-person)
wait a sec……..oh there he is……	See(focus-person) Infer(identity(focus-person))

.*[experimenter speaks again]*

[strategy?]

alright so, basic strategy was that ah since in this particular feature right now, there are not too many people, you can actually count how many people are there. And after taking a walk through all the rooms, I have a slight idea that who all are there in what all rooms. Ah, to be very frank on the left side of the room, standing right here on the starting point, all are empty. And all right side rooms have people inside. So, that room is where I started from and I was just looking for a guy whom I was familiar with right at the start. So, it was quite easy to actually locate him. And ah…besides that, ah the main strategy that I have followed is I take room one by one, like the way they were coming in my way. Like, if there is a room in the left, I'll check that out. There is a room in the right, right, adjacent to that, I'll check that out. So, this is actually how I've gone on in moving in this game. So, I have followed the simple strategy of following the rooms in order, and there has been no random order in which I have entered into the rooms and I was trying to follow the tour guide right from the very start. Well, I lost the track a little bit and…what else? The major reason is that ah, since there were very few people, in fact, one per room, it was quite easy to actually locate anyone actually. So, had it been someone else, it would have been easy to locate. Besides that, all of them are wearing sep, different dresses. They don't have the same dresses. So that makes it even more easier for one to locate, if they are trying to locate something out there. Alright? Okey.

Subject 33

Task 7

Subject Utterance	***Coded***
I just start moving and follow the person. I can see here	Follow(focus-person)
…. Ah another person	See(distractor-person)
but I'm able to…….. am…… ……	Subject has trouble vocalizing
I can see here the chairs……	See(distractors/perceptual-props (room))
I move around and finding the person whom I was following……..	Search-for(focus-person)
I move to another room to find out if he is there…..	Move(adjacent-room)
I couldn't find him here	
so I move back to the corridor…….	label(room)
And there I can see another person……	See(distractor-person)
I can see the corridor.	See(current-room)
Now, I am again moving to find the person whom I was first following	Search-for(focus-person)
and then…… and then I lost him somewhere…	Report(lose(focus-person):time (past))
I see another room,	See(room)
I can't find him.	Fail(find(focus-person))
So I move back,	Move(adjacent-room)
I move to a room in front of that room,	Move(adjacent-room)
to see if he's there…….there	Rationale:Search-for(focus-person)
I find one person but	See(distractor-person)
he is not the one which whom I was following.	Infer(identity(distractor-person))
So I move to the room which was beside it…… …….	Move(adjacent-room)
I just move to identify that person.	See(distractor-person)
I think I found that person whom I was following… ….	Speculate(identity(distractor-person, focus-person))
.no he is not the one whom I was following. …… …	Infer(identity(distractor-person))
let me move around and see if there is…… ….	Search-for(focus-person)
Yeah this was the person	See(focus-person) Infer(identity(focus-person))
I found out whom I was following	Infer(identity(focus-person))

Subject Utterance	***Coded***
and and now I can just follow his steps and move wherever he goes…..	Plan(follow(focus-person))
I'm following this person,	follow(focus-person)
he is moving toward..	Report(focus-person movement)
oh……. I can now follow him.	follow(focus-person)
Yes. He is moving. He moves to another….ah…he moves out of the room to a corridor……. he is moving into the corridor and…	Report(focus-person movement)
[experimenter says something in the background]	End task

.
[strategy?] Ahh, I could understand what steps he was taking. Like, the way his actions were….right from the first time that I saw him. I could recognize a bit of his face, his physical appearance…. ah and in that way, I was able to distinguish it from other people whom I found in the corridor and the rooms.

[experimenter asks more questions]

yeah. I was distracted but ah I would say I was, I was just lucky to find him up again …that…just moving to two or three moves, rooms, and ah, then I was able to find him luckily. Just like that.

[experimenter asks some more questions: how did you identify the person]

because of the actions which I noted of the person whom I saw in the beginning. I just noted his actions and the way he was moving. Ahhh, and a little bit of the face that I remember. Ammm and finally, when I got this guy again, amm I could ahh just remember that he was the same person whom I saw in the beginning.

Subject 34

Task 7

Subject Utterance	***Coded***
Oh so now I'mmmm following my tour guide.	Follow(focus-person)
To locate objects.	Subject has incorrect understanding of task
And in this ... ok. I can see some chairs in this room.	See(distractors/perceptual-props(room))
But then I follow my tour guide.	Follow(focus-person)
And I can see some more chairs and table.	See(distractors/perceptual-props(room))
And a man	See(distractor-person)
walking up and down.	Report(distractor-person movement)
I follow my tour guide again. I follow him	Follow(focus-person)
trying to find more objects.	Self-instruction **

Subject Utterance	*Coded*
And in this room I can see a table, um It looks likes a machine, sound machine,	See(distractors/perceptual-props(room))
and a woman dancing,	See(distractor-person) Report(distractor-person movement)
oh so it looks like some kind of a stereo	Infer(identity(distractors/perceptual-props(room))
and she's dancing,	Report(distractor-person movement)
and then I can see a bulletin board,.. with some posters, with some notices on that. I see .. a second board, with some more notices, and a file cabinet,	See(distractors/perceptual-props(room))
and is this? no! where is my tour guide.	Lose(focus-person)
Ok I follow him into the next room.	Follow(focus-person)
This looks like a computer lab.	Label(room)
And.. I can see a series of tables. one two three four five. With two computers on each and two chairs. I see a painting on the wall. I see another painting. So total there are two paintings on this wall.	See(distractors/perceptual-props(room))
And is this my tour guide?	Speculate(identity(distractor-person))
Are you my tour guide?	Talk-to(distractor-person)
<silent navigation> No I think he's not my tour guide.	Infer(identity(distractor-person))
He's just probably walking around in this room.	Rationale:distractor-person movement Infer(intention distractor person)
<silent navigation> sooo I have to follow my <silent navigation> tour guide.	Self-instruction
My tour guide is lost. <silent navigation>	Lose(focus-person)
ok let me find him.	Plan(search-for(focus-person))
This is the dancing lady	See(distractor-person) Infer(identity(distractor-person))
<silent navigation> <with rapid breathing.> I'm trying to-	Search-for(focus-person)
this is my tour guide. I located my tour guide once again.	See(focus-person) Infer(identity(focus-person))
Now I think I'm in the same room. We just entered the computer lab through another door.	Infer(identity(room))
And he's walking backwards.	Report(focus-person movement)
And I'm following him,... where ever he's taking me.	Follow(focus-person)
<silent navigation> Its the same room	Infer(identity(room))
with all those tables, chairs and computers	See(distractors/perceptual-props(room))
and I see another man now,	See(distractor-person)
apart from the one which was already there earlier.	Infer(identity(distractor-person))
I see a second man	See(distractor-person)
lecturing something to somebody,.. talking.	Report(distractor-person movement)

Subject Utterance	***Coded***
and I enter... again I enter the same room which I had entered earlier,	Move(adjacent-room) Infer(identity(room))
with the two bulletin boards and the file cabinet and a stereo and a table.	See(distractors/perceptual-props(room))
I leave this room.	Move(adjacent-room)
Follow my tour guide,	Follow(focus-person)
to the next room I think. <silent navigation>	Anticipate(focus-person movement)

<retrospective>

I, because, oofff I think he had a very specific gait. So he has this, you know, with his arms.... by his side, he was walking backwards. And the other one was a lady so I could, you know, distinguish very quickly. And I was confused by the one in the computer lab. But then I realized thats he's moving around the computer lab; he's not going out of the room, So I guess I, thats how I followed him and not anybody else.

<experimenter calls attention to the time that the subject lost the tour guide>

Because I got first of all um, I got lost in that room. I mean, I didn't get lost in that room, I took some time in that room trying to identify the objects. By the time my tour guide had left and then I... thought.. I mistook the man who was there for my tour guide. So it took me a few seconds to, um locate you know, distinguish him. Um that he was not the on- tour guide.

Follow(focus-person)

Subject 35

Task 7

Subject Utterance	***Coded***
Yeah,	Begin-task
here is a guide.	See(focus-person)
So I'm just following the guide,	Follow(focus-person)
as per instructions given.	Rationale:instructions
There are few chairs here.	See(distractors/perceptual-props(room))
There is another person.. in this room.	See(distractor-person)
Now I am just following the guide.	Follow(focus-person)

Subject Utterance	*Coded*
and. He has entered into another room.	Report(focus-person movement)
I am just going,... behind him.	
And, there is a-another person, in this room also.	See(distractor-person)
And there is a blackboard, there are a few chairs.	See(distractors/perceptual-props(room))
I'm just leaving out of this room,	Move(adjacent-room)
because I need to follow that guide.	Rationale:follow(focus-person)
<silent navigation> Actually he's moving backwards. And now he's moving frontwards to another room.	Understand (focus-person movement)
There's a, music system there.	See(distractors/perceptual-props(room))
A girl is dancing on the floor, there,	See(distractor-person) Report(distractor-person movement)
and. I'm just following the guide.	Follow(focus-person)
<silent navigation> I want to see that dance but as per instructions I'm just following the guide.	Comment
And now there is ano- another person here.	See(distractor-person)
He's doing some, skating or something.	Report(distractor-person movement)
And my guide is - has gone to another par- another room.	Report(focus-person movement)
There are a few computers here. On the table.	See(distractors/perceptual-props(room))
and,... I'm just trying to, look at my guide where, I've missed him somewhere -	Lose(focus-person) Search-for(focus-person)
oh yeah he's there.	See(focus-person) infer(identity(focus-person))
Behind the tables.	Report(focus-person location)
yeah I'm just following him.	Follow(focus-person)
Now he's moving across the room. He's going to another room.	Report(focus-person movement)
I'm just following him.	Follow(focus-person)
Now, we are in some corridor there.	Report(location)
And there was a girl there again.	See(distractor-person)
Thats the guy whose dancing.	Infer(identity(distractor-person))

Subject Utterance	***Coded***
No I'm getting to another room. <silent navigation> I'm just trying to enter that room, yeah, now I'm in,	Move(adjacent-room)
following my guide	Follow(focus-person)
and that girl is still dancing there.	Report(distractor-person movement)
I don't know what the music system is there.	comment
Now I'm just trying to enter, another room,	Move(adjacent-room)
following my guide.	Follow(focus-person)
And now the dancing girl is following the guide also.	Report(distractor-person movement)
<silent navigation> I'm just trying to pass her,	Move(around distractor-person)
so I don't lose my guide again.	Rationale:not(lose(focus-person))
Now he's going to- out of this room, to another room.	Report(focus-person movement)
<silent navigation> ah- in this room again	Infer(identity(room))
there are tables and, few things on the tables. I guess computer or something like that. ...	
I'm just following this guide.	Follow(focus-person)
There are two more persons in this room. ...	See(distractor-person:2)
The one I, also saw, last time, last, last room.	Infer(identity(distractor-person))
And, there's another person, which is moving his hands, point, with pointed finger.	Report(distractor-person movement)
Now I'm just trying to follow, the guy to another room.	Follow(focus-person)
There are a few notices on the notice board, but I'm not able to read them.	See(distractors/perceptual-props(room))
Now my guide has gone to, outside the room.	Report(focus-person movement)
I'm just trying to follow him.	Follow(focus-person)

<retrospective>

To follow him I was just looking where he is going and...

<other people - but your followed your guide instead>

Like I was looking around at what other things are there in the room or what persons are there but, I was also trying to see by the corner of eye or some- that where is guide going, so once he was out of sight, so I just made like, I just looked around here and there. I just make sure that I don't lose him, that which speed he's going in, with which speed, so that I don't lose him. So I just wanted to look around, few things and at the same time I didn't want to l- make lose my guy.

Subject 36

Task 7

Subject Utterance	***Coded***
Alright.	Begin-task
I'm following the person into the room on the left.	Follow(focus-person):adjacent-room
In the room, there is somebody	See(distractor-person)
lifting his arm and walking backwards, sliding backwards…	Report(distractor-person movement)
……. Why are they walking backwards? Is that natural? *[experimenter answers]*	Query Experimenter
the other guy? Now.. now what the other guy is doing is just lifting his arm as he walks.	Report(distractor-person movement)
Aha! Uh! *[experimenter]*	suprise
Oh! I'm climbing on the chair?	Move(in room):unusual
Cool! (a whisper)	comment
Now … the tour guide is walking back in the same direction he came from. And he is going to the left which is another room	Report(focus-person movement)
where some girl's working out, or something.	See(distractor-person) Report(distractor-person movement)
Oh, she is doing something weird.	Report(distractor-person movement)
Annnd he is sliding backwards,	Report(focus-person movement)
behind the computer looking thing…. It is a big thing	See(distractors/perceptual-props(room))
…… And he is walking into a room	Report(focus-person movement)
with computers……	See(distractors/perceptual-props(room))
.and he just keeps on walking……	Report(focus-person movement)
Can I climb on the tables? …(chuckles)	Speculate(self mobility)

Subject Utterance	*Coded*
That would be funny.	Comment
And so this guy is walking out again, and is facing the door he came out before…	Report(focus-person movement)
I think.	Anticipate(focus-person movement)
Nope. Alright (whispers). We're not going in there?	Fail(Anticipate(focus-person movement))
I'm following the guy down in the hallway again, in the direction it was walking originally.	Follow(focus-person)
Annnd he is going into a room	Report(focus-person movement)
with a table, a pepsi machine, …..	See(distractors/perceptual-props(room))
and that chick doing some other thing again. ….	
There is also like an oven…..	
annnd he is walking…….. into the room, another room	Report(focus-person movement)
that 's really empty and it has just three doors.	See(distractors/perceptual-props(room))
And I'm still following him.	Follow(focus-person)
…And we're back in the computer lab. ……	Report(location)
.And I'm walking to the computer lab again……	Move(room) Infer(identity(room))
.annd there's some other guy sliding across the floor.	See(distractor-person) Report(distractor-person movement)
And I don't know. He looked funny.	Perceptual-props(distractor-person)???
……there's another guy pointing.	See(distractor-person) Report(distractor-person movement)
And I'm following the guy into…	Follow(focus-person)
there's a room with a big computer box.. in the middle of the room with like a table on a table.	See(distractors/perceptual-props(room))
And we're back in the hallway…	Report(location)
and we're back.	End-task

[experimenter asks about strategy]

I would just see where he is going and I was following him and it was kinda, you know you could see that there was like just a few rooms and they were just closed up, there was nothing else. So there was nothing else into all those rooms. I mean, they just opened up into into each other, basically.

[experimenter asks some more question-how distinguish the guide from others]

because he looks….. he has a funny look. I mean he is darkish, and he has like glasses, apparently. And you

know, some of the other people were just girls, or you know they were different sex or they were wearing different things or..he is seeming to be shorter than some of the guys. The other guys in there……..

Subject 37

Task 7

Subject Utterance	***Coded***
I have to follow a person? Right? *[experimenter repeats printed instructions]* yeah.	Query(experimenter)
He's entered this room.	Report(focus-person movement)
Let me enter it. ……..	Move(adjacent-room)
ah there are chairs and everything.	See(distractors/perceptual-props(room))
But I don't need to mention them right? Okey. *[experimenter repeats printed instructions]* Okey.	Query(experimenter)
I'm following him.	Follow(followed-person) [focus person has been lost]
I don't know what he is doing	Fail(infer(intention(followed person)))
…… maybe, showing me some kind of direction or..maybe, I'm a student…	speculate(intention(followed person))
…….maybe, this is not the person I'm following…	Speculate(identity(followed person))
……I'm moving out of this room.	Move(adjacent-room)
Let me follow this one……	Follow(followed-person)
aha…….mmmm,	Infer(distractor(followed-person))
let me see the computer lab in here…	Move(adjacent-room) Label(room)
yeah? Is this the person I was looking for?	See(distractor-person) Speculate(identity(distractor-person))
. I don't remember his face and structure……	Fail(recall (perceptual-props(focus-person))
[experimenter talks in the background and stops the experiment]	End-task

[experimenter asks about strategy]

ah, just following him. Nothing else. I mean.

[experimenter asks some more questions-when you lost sight of him-what was your strategy to reacquire him]

ah, actually, he was wearing a suit, the tie. And that's what I remember of him, when I saw him once. So, he entered the room. I supposed he must have gone out of it. I don't know how. So I tried to follow him to other rooms, randomly.

[experimenter talks again. So when you found other people in suits and ties.....]

yeah they, yeah they looked similar to me.

Subject 38

Task 7

Subject Utterance	***Coded***
Ok I'm following the tour guide.	
He has just turned left,	Report(focus-person movement)
and I walk, uh right behind him.	Follow(focus-person)
I notice there is another man.	See(distractor person)
I j- I look around the room quickly so I - while I have a chance.	Search(current-room)
The tour guide going to the next room.	Report(focus-person movement)
I look around the room,	Search(current-room)
simply because I'm curious.	Rationale:curiosity
<about two seconds of silent navigation.>	
I see that the same man	See(distractor person) Infer(identity(distractor person)
has moved from that room into this room.	Report(distractor person movement)
Tour guide goes back into the hallway, and he goes back the way we just came.	Report(focus-person movement)
So follow the tour guide,	Follow(focus-person)
he turns left.	Report(focus-person movement)
And I notice there's a woman in this room	See(distractor person)
and a - radio and I look around and I see a file cabinet.	
Keep following this guy <little more silent navigation>	

Subject Utterance	*Coded*
And I see that he is heading for another room that is through this room.	Anticipate(focus-person movement)
There is a file cabinet right to my side.	See(distractors/perceptual-prop(room))
Since he's a tour guide, I take it that I'm on a tour of some kind so I sort of am looking around to see what I see.	Self Instruction
I see more people in here,	See(distractor- people)
there's a bank of computers, paintings on the wall.	See(distractors/perceptual-prop(room))
<navigation> Tour guide heads back to the hallway.	Infer(identity(room))
<navigation> Following him down the hallway.	Follow(focus-person)
Tour guide turns left	Report(focus-person movement)
into a cafeteria of sorts,	Label(room)
there a vending machine, theres a counter, a stove.	See(distractors/perceptual-prop(room))
A woman walks in.	See(distractor person)
I follow him back onto the hallway.	Follow(focus-person) Infer(identity(room))
The hallway has uh sortof become a 'T' the top of a 'T' here.	Infer(map)
and the woman is sort of blocking my walk.	See(distractor person) Navigational-hindrance(distractor person)
The tour guide's going, to the end of the right of the 'T'.	Report(focus-person movement)
And we go back into the room with computers.	Both-move(adjacent-room) Infer(identity(room))
It might not be the same one,	Speculate(identity(room))
but its - this one's got computers too.	See(distractors/perceptual-prop(room))
<navigation> It is the same one.	Infer(identity(room))
<navigation - about 4 seconds> We just walked through the length of this room.	Both-move(room)
The tour guide is heading into the next room,	Anticipate(focus person movement)
the one with the file cabinet and a radio of some sort.	See(distractors/perceptual-prop(room)) Infer(identity(room))
There's a bulletin board with notices on it.	See(distractors/perceptual-prop(room))

Subject Utterance	***Coded***
<navigation 4 seconds and then the end of the experiment>	End-task

<retrospective>

Ummm I think, I sort of just sorta filtered out everything else but him and concentrated on him. I was aware of everything around, uhh principally one, because I, because he is a tour guide, I thought I should be looking around, so I made sure I looked around and I saw all these different people but my purpose was to follow the person so I sort of a attn - didn't attend to anything else.

<experimenter prompts subject that he looks away from his tour guide during the experiment and when he looked back - more than one person was visible a couple of time - how did he choose the right person as the tour guide>

yeah, one he was moving in a characteristic way, which was sorta, and which was not along the lines of what anybody else was doing, and more than that I guess, uh in my v- in my mental representation, I sort of extrapolated where he might be and caught back onto him.

Subject 65

Task 7

Subject Utterance	***Coded***
<silent navigation> <experimenter prompts subject>	Subject has trouble vocalizing while navigating
There are around... eight to ten objects. <silent navigation> there are chairs. <silent navigation> there are around <silent navigation> sssseven more chairs, a blackboard, and a desk.	See(distractors/perceptual-props(rooms))
There's another guy shaking his hand.	See(distractor-person) Report(distractor-person movement)
<silent navigation> <experimenter prompts> yeah because I'm following the guy.	Follow(focus-person)
OK there's a female.	See(distractor-person)
There's a big machine, on a table.	See(distractors/perceptual-props(rooms))
The female is dancing.	Report(distractor-person movement)
<silent navigation> Ok there's a frame- there's a, bulletin board on the, wall. I see uh, four cabinets.	See(distractors/perceptual-props(rooms))

Subject Utterance	*Coded*
There's another guy whose just entered the room.	See(distractor-person) Report(distractor-person movement)
Now I enter into kind of cybrary.	Move(adjacent-room) Label(room)
There's another guy whose come over.	See(distractor-person) Report(distractor-person movement)
<silent navigation> There are around two comps [comps being the Indian English slang for computers -transcriber] in each desk. With two chairs... per desk. ... there are around...<silent navigation>. Eight rows...	See(distractors/perceptual-props(room))
I'm still following the guy.	Follow(focus-person)
I see the female again. ..	See(distractor-person) Infer(identity(distractor-person))
who was dancing earlier.	Report(distractor-person movement:time(past))
<silent navigation>.. see a, pop vending machine. With a table, and a kind of a microwave or something	See(distractors/perceptual-props(room))
I think it is a cafeteria.	Label(room)
.. I see the same girl again	See(distractor-person) Infer(identity(distractor-person))
who is dancing.	Report(distractor-person movement)
<silent navigation> now I enter a, rectangular, room	Move(adjacent-room)
with nothing place,	See(distractors/perceptual-props(room))
I think its a... it's a walk way or something its a, I don't know gallery or something...	Label(room)
I enter the same room, with the cybrary from the behind door.	Move(adjacent-room) Infer(identity(room))
There are two discrete machines on the wall. And around eight rows of machines, of tables with two chairs again. . around two machines per row.	See(distractors/perceptual-props(room))
I see two guys,	See(distractor-persons:2)
one wearing a blue suit. <silent navigation> and the other one, wearing a white shirt.	Perceptual-props(distractor-persons)

Subject Utterance	***Coded***
He's, He's giving some kind of directions.	Report(distractor-person movement)
I again enter the room	Move(adjacent-room) infer(identity(room))
with the bulletin board, there are two bulletin boards.... and some kind of a machine, something.	See(distractors/perceptual-props(room))

<retrospective>

uh, basic strategy was, like, I was just following him, where he was going. It was kind of an, uh identification. Uh, Like, no, I was following the image of the guy. As he was travelling through different rooms, where I met a couple of people who were similar to him, but, possibly, you know, there were distinguishing features like the specs [spectacles - transcriber], uh the tie, red tie, and the, blue suite so it was easy to following him.

<so you noted, the reason you weren't distracted by any of the other->

yeah, yeah he was unique.

Subject 66

Task 7

Subject Utterance	***Coded***
All right,	Begin-task
I see the guy, movin to the left, door. The first left door.	Report(focus-person movement)
So I'm following him.	Follow(focus-person)
he's walking backwards now	Report(focus-person movement)
so I'm following him again.	Follow(focus-person)
He's going towards the next door. Out the-	Report(focus-person movement)
There's another guy	See(distractor movement)
that a- that was walking backwards but, he's going in the same direction that , the original guy, that my original tour guide was going in.	Report(distractor person movement)

Subject Utterance	*Coded*
So he keeps going backwards, he stop before the table.	Report(focus-person movement)
I kind of like, jump over something for some a-.	Move(in room):unusual
Then like he goes to the next door,	Report(focus-person movement)
that leads into the hallway again I believe.	Infer(identity(adjacent-room))
he starts walking,	Report(focus-person movement)
what seems to be back where I started from.	Infer(map)
So as he walks back	Report(focus-person movement)
I follow him.	Follow(focus-person)
He-he makes, a left, into this room right here.	Report(focus-person movement)
There's a box on the table,	See(distractors/perceptual-props(room))
and a woman;	See(distractor-person)
it looks likes she's dancing or something,	Report(movement(distractor person)
in this room.	See(distractors/perceptual-props(room))
So he's walking on the other side of the table, on the back wall. He's walking backwards again.	Report(focus-person movement)
Getting ready to go through the next door..	Infer(intention(focus-person))
There's a pink file cabinet.	See(distractors/perceptual-props(room))
I passed a pink f- pink file cabinet into the room.	Move(adjacent-room)
.. h- I pass another guy on the way	See(distractor-person)
while following him.	Follow(focus-person)
To what, it looks to be like a computer room	Label(current-room)
with lots of computers.	See(distractors/perceptual-props(room))
He keeps walking.	Report(focus-person movement)
I follow him, backwards, past the first two tables... Then the first three tables.	Follow(focus-person)
So he stops right there, in between the third and the firth and goes to the door.	Report(focus-person movement)
Past the hallway,	Anticipate(focus-person movement)
or in the hall way	Fail(Anticipate(focus-person movement))
and he makes a right in the hallway. He keeps walking.	Report(focus-person movement)
And I see the girl again.	See(distractor-person) Infer(identity(distractor-person))

Subject Utterance	*Coded*
. towards the back of the hallway.	Report(location(distractor-person))
Then he makes a left, into another room, from the hallway.	Report(focus-person movement)
There's a table, . and a pepsi machine.	See(distractors/perceptual-props(room))
And the girl's in this room.	See(distractor-person) Infer(identity(distractor-person))
She came from the back and she came in through, another door,	Report(distractor-person movement)
a door that he's leading me out right now.	Anticipate(focus-person movement)
And as he goes out	Report(focus-person movement)
I follow him.	Follow(focus-person)
And it appears that we have to make a right so, 'cause there's a wall right there.	Anticipate(focus-person movement)
And, And the girl is following him.	Report(distractor-person movement)
He's going straight.	Report(focus-person movement)
So I keep following him.	
Still going straight.	Report(focus-person movement)
It appears like he's goin-	Anticipate(focus-person movement)
yup	Correct(anticipation)
he makes a right, through the door where,	Report(focus-person movement)
the computer room again.	Infer(identity(room))
Through the back entrance.	Infer(map)
Makes a right and walks on the, right side of the tables. Keeps going back.. Keeps going straight.	Report(focus-person movement)
I'm gonna follow him.	Follow(focus-person)
.. He keeps going straight.	
tw- I see two other people,	See(distractor-people:2)
at the end of the room.	Report(location(distractor-people))
A guy in a blue, suite and a guy in a black vest,	Perceptual-props(distractor-people)
so I keep following him.	Follow(focus-person)
He makes a left.	Report(focus-person movement)
So I follow him again.	Follow(focus-person)
. He, he goes through the door, with-	Report(focus-person movement)

Subject Utterance	***Coded***
into the room with the, box on top of the table again.,	See(distractors/perceptual-props(room)) infer(identity(room))
He keeps moving through the s-	Report(focus-person movement)
and he appears like he's,	Anticipate(focus-person movement)
yeah he goes through the middle, or the side door into the hallway again. He makes a left,	Report(focus-person movement)
so I follow him	Follow(focus-person)
w- from what appears to where I been started from	Report(location) Infer(map)
and he stops.	End-task

<retrospective>

I just, I just wal- I just like, wherever he went I walked, I went with him. like I'm- obviously I didn't go ahead of him. I made sure like, I saw him first like go, in like, I didn't get confused with the people walking around 'cause I just like, its not a big deal. Like it didn't confuse me or anything.

<why wasn't it a big deal?>

It wasn't a big deal because, I know, from the beginning like, I, when I first saw him I knew, I recognized his features black person with a, blue suit coat on, red tie. So I just kept tha timiage in my head you know, like I-I knew who he was and I just kept on following him.

<so you were able to follow im instead of the others because...>

right, because, another reason was 'cause like, the other characters stood out alot more, like the girl that was dancing. And then like- he just like basically just walked backwards the whole time just kinda like flowed on the ground. And the other guys were just like, basically just kinda like stood there walked around a little bit, but this guy kept on moving. so.

Subject 67

Task 7

Subject Utterance	*Coded*
Ohh I follow you.	Self-instruction Talk to focus-bot
Oh no. <silent navigation> Oh there are so many guys.	Distress See(distractor-person)
<silent navigation>oh I have to go in here,	Plan(move(room))
because my guy went, in here...	Rationale:focus-person movement
But he has left,	Report(focus-person movement)
he moves so fast,	Understand focus-person mobility
why can't he wait for me?	comment
.. see, he's not here any more.	Lose(focus-person)
And you said he'll be my guide! but he left me!	Accuse experimenter
Oh no! come, come. There's my guy,	See(focus-person) infer(identity(focus-person))
hello. He went in there.	Report(focus-person movement)
<silent navigation>. oh where's my guide.	Lose(focus-person)
There,	See(person) infer(identity(focus-person)) ??
oh, there's a woman	See(distractor person)
whose, dancing like crazy.	Understand(distractor-person movement)
Guy! are you that guy?	Query(person)
no you're not that guy.	Infer(identity(distractor-person))
<silent navigation> are you that guy?	Query(person)
no you're not that guy,	Infer(identity(distractor-person))
he-he's wearing a suit. .. oohh. And he's short. At least that's how I remembered him to be. He's not tall, and he's wearing a suit. And he walks like funny.	Recall properties of focus-person
Hey get out! you're not my guy. <silent navigation>.	Scold distractor person

Subject Utterance	*Coded*
eh where did he go?	Self query
there, he went there.	See(focus-person) Report(focus-person movement)
ooohhhhhohohohhhh. Let me get out. Let me ouuuttttttt! I'm trapped.	Navigational-Hindrance
There! hey guuuuy! Where are you. Where are you? why did you leave me?	Lose(focus-person Query(focus-person
Will you be here?	Search(rooms) Query(focus-person)
no. Nnnnnno.	Fail(find focus
Oh, there's an advertisement.	See(distractor/perceptual-props(room))
Were you paid for this? <laughs>	Query(experimenter)
were are you guide?	Query(person)
I have to look for you,	Talk-to(focus-person)
hmm no its not yo, it's not you either. It's not you either.	Infer(identity(distractor-person))
Is that you? can I follow you? can I check if you're my guide.	See(person) Speculate(identity(person) Query(person) Infer(identity(focus-person))
ooh oops. ... well that not that, this is the same room I'm from.	Infer(identity(room))
My guide is not touring me quite well!	Comment
oops. oops. There you go. There you go.	Report(focus-person movement)
No not you.	Talk to distractor-person
There you go.	
oops. why's his butt quite big, is he a woman?	See(perceptual-props(focus-person))
nooo. No he's not that nerdy.	comment
He looks black.	See(perceptual-props(focus-person))
There, there there, there are you going out?	Anticipate(focus-person movement) Query(focus-person)
ok, wait! wait, waaiiitt. waaaaaait. waaaait.	Command(focus-person)
Where are you now.	Search-for(focus-person)

<retrospective>

<sigh> strategy?

<yes, how did you follow him, and not someone else?>

ahhh his suit, he was wearing. His shape. Lets see, how he looks like. ahh his color. Yeah his manner.

<so what do you mean by his manner.>

like, is he dancing like the girl? or is he teaching like the nerdy geek? there. Or like the tall and lanky guy there? nah.

<ok so the way he moves and the way he looks you said>

And his color, yeah. Yeah, and he w- and what he's wearing yeah. Yeah that's part of it.

<so thats how you were able to follow him, and how you were able to find him again when you lost him?>

yes yesssss ok?

Subject 68

Task 7

Subject Utterance	***Coded***
I can't hear him <experimenter tells subject that there is nothing to here> oh, ok ok yeah.	Query(experimenter)
So I'm following him.	Follow(focus-person)
He just took a left turn. Yeah he's going there;	Report(focus-person movement)
I guess this is the person.	See(focus-person) Infer(identity(focus-person))
I see another person.	See(distractor person) Infer(identity(distractor-person))
Am I supposed to identify the number of objects right now. <experimenter reads the lines of the instructions indicating that subjects should follow the tour guide>	Query(experimenter)
Ok, its just ok, to stop when he asks me to stop.	Self instruction

Subject Utterance	*Coded*
So I'm just following him. Wherever he's going..	Follow(focus-person)
Right now oke, he... ok.. sooo he's taking a left here.	
I'm following him. <silent navigation>	Follow(focus-person)
.. yeah okey. Since he's moving slow, I might just wait till he, goes to a distance.	Plan(follow focus-person in short bursts of quick movement)
.. yeah, ok,.. ahhh<chuckle><silent navigation> ok. <experimenter prompts subject> ok fo-or	Subject having trouble vocalizing
ok for following him. ok ,yup, so my basic strategy issss, uhhh,.. yeah. it that, I expend as much less energy as possible, yeah, because I know I can get, to him, if he goes to a distance. Still he's walking very slow.	Strategy(be lazy) Strategy(understand focus-bot mobility)
Ok now he's entered this room.	Report(focus-person movement)
I guess you'll ask me to stop here.	Anticipate(experimenter action)
Lets see. no. Ok,	Fail(anticipation)
ahhh <silent navigation> soooo <silent navigation><chuckle>	Trouble vocalizing
OK, so there are these characters who are, like sort of blocking my way.	See(distractor person) Navigational-Hindrance(distractor-person)
So I, I'll I'm trying to get ahead of them, before they block my way.	Plan (go around distractor-person)
ok, yeah. I guess I can wait here and move out from, what he's doing. yeah. yeah. Its sort of taking alot of effort to turn around, go with him places, so I'd rather watch till he reaches a distance, then I'll catch up.	Plan(return to original strategy)
..... ok so he's passing through a door, sort of door.	Report(focus-person movement)
ok this is a much better room, not many obstacles.	See(perceptual-props(room))
suit, ... <experiment ends>	

<retrospective>

To follow this guy? ahh I was just ah... I was just following him, wherever he was going.

<you lost sight of him a couple of times, bout you found him again - how did you do that?>

yeah because I just looked around, in case, yeah, if I do lose sight of him, I know which place he ac- exactly went, where I last saw him, I saw him entering a room or something, so I went in, went in there, and I just looked around, to see who. Actually I could, uh judge, whether he was taking a right or a left, through a door, yeah I could see that, he's going to the right. So the first thing I would do is look right, if I don't find him there then I'd look left. The other s- the other way. And yesh, so generally I used to find him, where he was- wherever he was. This was sufficient.

<how did you choose him rather than one of the other people?>

uh-huh I-I Identified him? how I identified him? uhhh. Because, I guess uh, he had a funny face, it was different from the others. yeah, it sort of looked as if it was, the other way.

<so his face was a little different>

yeah, it looked different.